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EDITED BY

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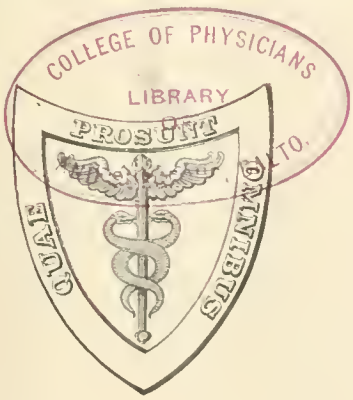

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ORIGINAL ARTICLES.

CLINICAL LESSONS.

Motor Ataxia—Ataxia in a Child of Three Years, with Retained Muscle reflexes—Hysterical Ataxia, with Retained Muscle-reflexes.

BY S. WEIR MITCHELL, M.D., LL.D.,
OF PHILADELPHIA.

THE child, whose parents kindly permit me to show him to you, has a form of malady which I saw for the first time when I saw him last week. Here is a fine little man, well developed, exceedingly strong, and as intelligent as most children at his age. He is quite unable to stand alone. Even to sit alone seems difficult. No one will fail to note that he is ataxic from head to feet. The following notes of his condition at the present time are compiled from the examination-record made by Dr. John K. Mitchell and the very clearly written statement of the father.

P. Q., male, three years and five months of age.

Family history. The child's grandfather was addicted to alcohol. The parents are second-cousins and much alike in disposition and general characteristics. There is also some tuberculous history in the ancestry.

Previous history. The child was born normally at term. No instruments were used. The only thing attracting attention at the time of birth was "something unusual" about the little one's ankles. The physician said it was "all right," and the babe seemed otherwise like others; the child cried, kicked, nursed from the breast, etc. Owing to mammary abscesses the mother nursed the infant no more than four weeks. After that the child lived on non-sterilized cows' milk, and later on "malted milk" and other artificial foods until eight months of age, and with sustained good health.

At that time, however (eight months of age), it was taken on a railroad journey. It is supposed that "sour milk" was the cause of a severe attack of diarrhea, which resulted, at the end of the long trip or a few days later, in what the physician writes was "spurious hydrocephalus." Then the temperature was 103.5° F. The child threw its hands about, especially toward the head, and moaned a great deal. It had also "intolerance of light" at this time.

The physician gave a cool bath and a dose of brandy. By the next day the patient had recovered from the serious symptoms, including the diarrhea.

"Recovery was rapid and uneventful."

After this attack of bowel-trouble digestion seemed as well performed as usual. Two months later (*i. e.*, at ten months of age) it was specially noticed that the child could not sit erect. Nothing had seemed abnormal until now, other than undue lassitude. On examination, Dr. J. S. Hackney found that "there was an antero-posterior curvature of the spine," the most prominent point being at about the mid-dorsal region.

Accordingly a plaster jacket was applied. This was cut and removed as often as necessary. There seemed to be some relief from this for the now evidently weak back. The jacket was worn for six weeks.

The little patient has kept up a general good tone since then, the back seeming to have become straight and quite strong again; nor has he had any bowel-complaint since that in his first summer.

The present condition seems to date from thirteen months of age, when the child began to have an oscillatory movement of the left eye and later of the right eye. This nystagmus was always the more noticeable in the left eye. At this time, too his health was good. He seemed somewhat nervous, but did not have any convulsive movements, and never has had any such tendency.

At fourteen months of age he had an attack of bronchitis. In the second week of this illness symptoms of what was said to have been tuberculous meningitis made their appearance. Both bronchial and meningeal symptoms, however, disappeared during the third week. Since then, until now, the child has enjoyed very good health, excepting for extreme nervousness, seemingly lit up anew during the illness stated. He now became easily startled and scared. This timidity has become the more apparent as he grows older. He is at present unusually sensitive. His father says the mental faculties are normal, or at times precocious.

The child did not move about if placed on the floor until two years old. It has only been since January, 1894 (three years and two months old), that he has at all begun to "pull" himself to a standing position with his arms with the aid of a chair, bed, etc. Now, when up, he can walk along the side of the bed or balusters, holding firmly for support. This ability has been acquired only within the past few months. Even when thus holding himself upon his feet he seems in fear of falling. He will, therefore, not attempt to use his feet unless holding firmly to some object.

The patient has been extremely constipated until about a year ago. Since then the bowels have been reasonably regular. This change has probably been brought about by the greater physical exertion of attempted movement.

The child is rather pale; the muscles are fair in size, but very flabby. The head is large, but sym-

metrical. The chest is large, indeed unusually full for a child. He does not crawl, but he can shuffle about, seated; he can walk about when supported, but with a marked ataxic gait and with feebleness. He "kicks" the legs forward in the effort at locomotion. The erectores spinæ are weak. The abdominal muscles and thigh-muscles do not hold the body steadily erect on the legs. He leans too far forward or back. The tendency is more backward, however, when he is thus supported. He cannot feed himself.

Incoördination is marked in the hands, but there is no tremor. He uses the left hand better than the right, and possibly the left leg a little better than the right one.

Nervous system. Sensation is perfect everywhere. Knee-jerks and elbow-jerks are normal, and no ankle-clonus exists. Muscle-jerks of the arms and legs give normal response on stimulation with the percussion-hammer. Electrical examination shows no alteration to faradism or galvanism. The child seems intelligent and alert, though timid and nervous. No signs of pain were elicited at any time during the examinations. He talks fairly, drawls his words somewhat, but speaks freely. The mouth and teeth are normal. There is no preputial adhesion, no incontinence of urine, and this excretion is normal.

Eyes (examined by Dr. A. G. Thompson). The "pupils react normally to light and accommodation. There is no choked disc. The nystagmus of both eyes and the convergent squint of the left eye are, therefore, not due to any refractive error," but are incoördinate movements, such as are seen in other parts of the body.

All other functions and organs are normal.

It seems reasonably clear that the cause of this interesting malady was not prenatal. The child remained well until he had the too common experience of summer diarrhea, followed as we see so often by brain-symptoms. What happened then is not now clearly known. He is said to have had "spurious hydrocephalus," and was, according to the note, very ill. At or after this time he could not sit up as he had been able to do. At the thirteenth month nystagmus began, or was first seen. Then followed a bronchitis and other brain-symptoms described as "tuberculous meningitis," and from this too he got well, and was seen to be more and more awkward as he grew older.

I confess to some puzzle in this case. There are no eye-ground signs. There is no wasting. There is no palsy of any nerve. There is unusual power from crown to sole; there is no sensory loss, and yet he cannot stand at all without some stay. Aided by a finger he can walk, throwing his feet out, and "clumping" precisely like a true spinal ataxic. But no such case in an adult had ever such a degree of disorder without disturbed feeling, or pain, or anesthesia, or girdle-pain, or pupillary signs. Here are none of these. Also, the ataxia is in all the limbs, but is worse in the legs. In the arms and legs, to my surprise, I found normal tendon-jerks, so called, and also normal reinforcements of these muscle-reflexes. There is nothing spastic in these. Sometimes they are excessive, probably from reinforcement due to emotion. There is no clonus; but this is rare in the child under any conditions. If this were a spinal ataxy, with added lateral sclerosis, we should have spastic reflex signals and the usual feebleness apt to be seen in that disorder; also the high ataxic movement of the feet seen in our case would be wanting.

Tabes of all kinds is as a rule progressive. The lad before you continuously improves in the use of his limbs. This is, therefore, neither tabes, nor spastic ataxia, nor is it the picture of hereditary ataxia; neither has he pain-crises, or trophic changes, so that probably the posterior nerve-roots and the gray spinal centers are to be excluded from a share in this disorder.

It seems to me possible that the double brain-diseases he is said to have had, and which left his power of mind and of muscle unimpaired, may have fallen on the cerebellum and left it permanently injured in one of its functions. As against this is the lad's gain in steadiness; but even with most of the cerebellum gone birds have after a year been able to fly. The mechanisms of replacement of function are not as yet clear to us, although we are often called on to recognize their value.

It is then possible that the cerebellum may have suffered over a large area of the surface, and that this damage may have been in part repaired, and a share of the functional activities safe-guarded and replaced by the other mechanisms which contribute to the integrity of equilibration.

I cannot say, however, that I am, even now, entirely sure as to a cerebellar lesion being the true cause of the ataxic state seen in this child, but it cannot be spinal unless the ataxia of childhood should prove to be a very different condition from that of the adult—an ataxia without sensory, ocular, or reflex symptoms. If we had any evidence of tumor of the cerebellum we should be aided in our diagnosis. In it there may be a knee-jerk, but we have not a sign of tumor.

I confess, as I study this case, to increasing difficulty of decision; as one looks at it, the case is to the eye a typical spinal ataxia; examined more nearly, much is lacking to make the perfect picture of that disorder or disease. But almost as much is also wanting to assure us of a cerebellar origin, and one should remember, I repeat, that we have hardly any studies of spinal ataxia in childhood. I reported one, years ago, which came out of Pott's disease, at the age of five, and was seen by me in a woman of forty. It had progressed in leaps, with long

periods of pathological inactivity. Of the earlier symptoms I learned little.

When as thoughtful a man as Gowers admits that the pain, ataxy, or anesthesia may be due to disease either of the cord or of the peripheral nerves, one sees the tangle into which we have gotten our knowledge of the mechanism of harmonious muscle-action, and its offspring, equilibration.

As there may be much loss of motor power, much impairment of motor centers and nerves, without corresponding loss of muscle-harmonies, we must, I think, still look to disease of the nerves of muscular sensation, their spinal tracts, and their cerebellar connection, for the varied seats of the incoordination of complex muscle-acts.

It is conceded that integrity of the knee-jerk, or any tendon-jerk from a blow on the tendon, implies wholeness of the neural arc of conduction and response from the centers concerned. When there is distinct, typical ataxia without spastic states, and with normal presentation of knee-jerk and ankle-jerk, it seems reasonable to conclude that the cause of this ataxy must lie above the region concerned in the muscle-muscle-reactions.[1]

The law which applies to knee-jerks and all tendon-jerks explains *in part* the direct muscle-jerk from a blow. For here, as Morris Lewis and I have shown, this response is due to two contributions, one the intrinsic muscular irritability, and one the addition from the cord. The former continues after nerve-section; the latter is lost, but its loss is only to be proved by the fact that *you can then no longer reinforce the direct muscle-jerk by remote voluntary motion.*

Such is the case late in posterior sclerosis. A blow on the muscle causes a jerk, but reinforcement is no longer possible. The response from tendon-jerk is only a finer, a more delicate, expression, and a larger one, of the same phenomenon. It is increased by tension, and obeys the law of the so-called tendon-jerk. In this boy neither muscle-jerk nor tendon-jerk is gone, nor yet their reinforcement.

The facts as to all this matter of sensory and motor reinforcement, discovered by Lewis and myself, remain as yet almost unnoticed in the text-books, and unused by clinical inquirers.

As regards this boy, I conclude, then, that the cause of his remarkable ataxic state must lie above the seat of response to the tendon-jerks, and does not interfere with the track of reinforcement, which is easily obtainable.

I must leave this case and its consideration without further words. I do not fully understand it, and the frank statement that I do not may have for you some moral value. Under training, with constant little bribes to do this or that until he succeeds, the lad is steadily improving. Even ordinary ataxics may improve by industrious efforts made with closed eyes, and this child has in his favor a normal mind and entirely wholesome nutrition.

An equally interesting case for study is a woman, now in McCormick ward. Dr. Walker will read the notes, which owe much of their interest to Dr. Musser, in whose charge she has been at the Presbyterian Hospital; and to Dr. Pearce, who is responsible for the blood-counts made for Dr. John K. Mitchell's paper on the influence of massage on the blood-count.

I shall presently show you the case. It is another illustration of clinical difficulty in decision. Here again we have an example of ataxia, typical and also extreme, with, save for one notable exception, perfect knee-jerks and elbow-jerks and entire muscle-jerks from a blow, and all reinforcible:

E. I., female, single, fifty years of age, was admitted into the Infirmary for Nervous Diseases, in the service of Dr. S. Weir Mitchell, March 2, 1894. She is intelligent, and gives the following history as to her illness, amplified by the observations at the Presbyterian Hospital and by our notes.

Family history. The woman is of a long-lived ancestry. Her father and mother are living and well at eighty-two and seventy-five years respectively. Three sisters are all healthy. Two brothers have died of scarlet fever and dysentery, and one sister in infancy. There are no neuroses or psychoses among her relatives, and the patient herself had an uneventful childhood as regards maladies, passing through the usual diseases in mild forms.

In 1887 she suffered from the ordinary symptoms of nervous exhaustion; then she became run down, had anorexia, and felt tired most of the day. These symptoms ran the course of many of the cases illy cared for. Then, after an attack of influenza in 1889, she was almost bedridden for a year from what she says was "weakness" only.

After this she was about again for several months, able to walk with a cane, but could not bear much exertion. She was especially weak in the spine and had considerable pain across the lumbar region. The patient also states that at this time she always had better use of the right foot than of the left—the latter was heavy, and seemed to "drag" in walking.

She continued in this way with but little change in the foregoing meager symptomatology until July, 1890, when she went to the Cooper Hospital, Camden, remaining there three months, with little or no improvement. From thence she was taken to the Presbyterian Hospital, Philadelphia, where she stayed in the wards one year. There she was in a highly neurotic condition, and had hysterical outbursts of crying and laughing. The sequelæ of these climaxes (which occurred, as a rule, near the menstrual epochs) were states of lethargy and again of fear, in which temporary hysterical delusions became prominent. The sick women about

[1] Contra-distinguished from skin-muscle-reflexes.

her were often much frightened by her peculiar wandering talk. In a few days she was apt to regain partial control, and would censure herself for acting so foolishly—of which, however, she had only vague remembrances. At this time, too, she seemed able to walk only with the assistance of a nurse, and only for short distances. Her upper extremities were also weak, and she was clumsy. It was, therefore, with difficulty that she fed or assisted in dressing herself. Under rest and tonics there was improvement of the general health, and on leaving the hospital she was able to walk a short distance with the aid of a cane. She was then at home from March to November, 1892, when she was readmitted to the Presbyterian Hospital, where she has been ever since with a multiplicity of symptoms.

Menstruation was normal up to June, 1893. In July, 1893, she had a severe attack of dysentery. The convalescence was slow, and she was left very anemic, the blood-count showing as low as 581,000 red cells on August 1st of that year. On September 1, 1893, the blood-count showed 950,000 red cells with macrocytes, microcytes, etc. On October 18, 1893, the red cells had increased to 1,620,000. The patient's condition seemed now fairly good. Her color had returned in a measure, so that the outlook seemed more encouraging. There was no menstrual flow between June and October, 1893, in which latter month she had a slight show, which recurred again in November, but never since.

By January 1, 1894, there was no material change, save that in the last few days she was decidedly more anemic again, and had headache, dyspnea, weakness, palpitation of the heart on the slightest attempt at exertion, with edema of the ankles coming on late in the afternoon. There was no edema of the face. The skin, too, has become of a lemon-yellow color, and the conjunctivæ of a bluish tint. Her lips are almost colorless.

The apex beat of the heart is in the fifth interspace. No thrill is felt. The shock of the second sound is readily felt in the pulmonary area. The area of cardiac dulness is normal. There is a soft hemic systolic murmur, low in pitch, transmitted into the axilla, accompanying but not obliterating the first sound at the apex. There is also a higher-pitched systolic murmur (probably hemic) heard in the pulmonary area.

Percussion posteriorly on the left side, a little above the spine of the scapula, reveals an almost tympanitic note. This is probably a transmitted note from the dilated stomach found more directly in front. The area of liver-dulness is slightly increased. There is one tender spot on palpation with the finger-tips to the right of the median line, two inches and another two and a half inches above the umbilical line. On January 16th, 1894, the patient had severe pain in the region of this tender spot, with great pallor and increasing weakness, so much so that duodenal ulceration and possibly hemorrhage was thought of. Dr. Musser had the stools carefully examined. No blood was passed, however, and no parasite could be found as a cause of the severe anemia; but this has latterly been proved to be not *pernicious* anemia. The hemoglobin had at this time gone down to 15 per cent., while the red blood-cells only numbered 930,000. There were also poikilocytes, macrocytes, and microcytes in abundance, while macroscopically a drop of blood looked like slightly tinged muddy water.

By February 22, 1894, the patient's skin and mucous membranes had again brightened. Her general condition also became much improved. She was decidedly less nervous, and sat up a short time in a chair each afternoon, but tired easily and could not walk.

On admission to the Infirmary, March 2, 1894, the following notes were made as to her condition: She is a large woman, a brunet, fairly well nourished, weighing 129 pounds. She complains of a feeling of "numbness and tingling" in her hands and feet. She says if she undertakes to hold anything in her hands she must *see* it in order to feel sure that it is there. She can feed herself, but her hands are too clumsy to permit of cutting her food. She cannot dress her hair. She can button her night-dress, but clumsily, and only as far up as she can see the buttons. These defective acts seem to be all due to awkwardness rather than to actual loss of tactile sense, which seems perfect in the hands and fingers. The disorder is mainly a motor ataxia. There is no subjective numbness or tingling anywhere except in the hands and feet. She does not complain of headache. She has pain in the back after any exertion, such as sitting up. We got her up in standing position, when the following was observed: *Station:* She can stand *only* by being supported on either side; she takes a few steps while being thus held, but the movements are markedly ataxic. The left foot is *pushed* forward. The right one is thrown up and out in utter incoördination.

In the sitting position, unsupported, and with eyes closed she does not sway.

Other than the characteristic gait, ataxia of the lower extremities is shown by an inability to bring the heel of either foot in contact with the opposite instep. Ataxia of the upper extremities is shown *even when lying* by inability to bring the fingers of the outstretched hand to the nose with the eyes closed. *Per contra*, the movements of the lower extremities are less incoördinate when she lies supine.

The reflexes, plantar, epigastric, and abdominal, are normal. The knee-jerks are also normal and reinforcible. There is clonus. In this case, too, there is absence of the normal ankle-jerks, as tested by tapping the tendo Achillis, but they can be elicited by reinforcement. The elbow-jerks are normal and reinforcible. The muscle-jerks are everywhere normal and reinforcible.

Sensibility. She distinguishes the two points of the esthesiometer when placed on different fingers, and points out quite accurately the fingers so touched. There seems to be some delay. Tactile sensation on the palmar and dorsal surfaces of both hands is likewise normal. *The thermal sense* is perfect. As to the weight- (or muscle-) sense, on holding the palm of the hand out (the patient being blindfolded), she distinguishes a difference between the following weights, *i. e.*, "the least observable differ-

ence" of Weber's law:[1] The right palm tells one ounce from two ounces only; the left palm tells one-quarter ounce from one-half ounce. Thus there is a difference in muscle-sense between the right and left arms, and the perception is not as acute as it should be. Numbness and tingling sensations are complained of in the hands and feet. No such paresthesia exists in other parts. There is no anesthesia or hyperesthesia, but there is varying analgesia to a deep pin-prick, as follows: The left lower extremity is analgesic from the groin to the metatarso-phalangeal joints; and the right upper extremity from midway between the shoulder and elbow to the metacarpo-phalangeal joints. The condition of analgesia of the upper extremity is variable, however, as twenty-four hours after the first examination sensation to pain seemed almost as acute as upon the opposite side. The right leg and thigh are at times partially analgesic to a pin-prick, but the areas of defect vary greatly from day to day.

Dr. Willits reports the muscular response to faradism everywhere normal.

Drs. de Schweinitz and Thomson made the following eye-report: "Both discs gray, especially in the deeper layers. Arteries too small, veins normal. Pupils normal. Color-fields (red and blue) *typically reversed*. Form-fields contracted."

The reaction-time of the different senses was next investigated. This reaction-time, however, will remain somewhat unsatisfactory until we record a sufficient number of tests upon the normal and abnormal individual to serve as a basis of comparison.[2]

Mr. Lightner Witmer kindly made examinations of this woman for me at the Psychological Laboratory of the University of Pennsylvania, on March 27, 1894, from which the following is abstracted:

First, as regards the motor nervous system, as recorded on the chronoscope, an instrument for recording the rapidity of a motion.

It was found that to pass over a distance of 50 c.m. it took the right hand $\frac{224}{1000}$ of a second (*i. e.*, 224 σ). In the left hand $\frac{241}{1000}$ of a second was required to pass as quickly as possible over the same distance.

A second series of these motor-impulse experiments (made *after* all the reaction-time experiments), were but little lengthened over the first series, thus pointing to the absence of fatigue of any considerable amount.

The normal rate of movement from the experiments of Profs. Fullerton and Cattell varies from between 87 σ to 180 σ for 50 c.m., as recorded on the chronoscope. The woman's movements were therefore slow.

The reaction-time to sound varied from 181 to 343 σ, somewhat longer than the normal, which varies from 120 σ to 170 σ.

The reaction-time for light varied from 160 σ to 350 σ. The normal light-perception is from 160 σ to 200 σ. The reaction-time to electric shock varied from 200 σ to 476 σ, a very marked retardation—and this too while the muscle-response to faradism seemed normal. Here is one of the enigmas appearing in this curious case.

There is thus a general tendency to slowness of perception. The receptive centers have at least become dulled. Is it the incipiency of organic disease? is the question that presents itself.

The patient's general health is fair. All organs seem normal, excepting that the bowels are a little torpid. She has good control over the bladder, and analysis of the urine is negative. Sleep is undisturbed.

The color has returned markedly since January, 1894, the red blood-cells numbering 3,200,000, and not being altered in shape or size. The hemoglobin-estimation is 60 per cent.[1]

The case as you hear it must strike you as peculiar. Reading this story backward, so to speak, the paresis, the anorexia, the type of mental disorder, all point to hysteria. Then we have added a dysentery, which leaves her with such anemic conditions and accompaniments as, for a time, seemed to make the diagnosis of pernicious anemia probable. The history of the development of the remarkable ataxia is not complete, but its presence is to-day her most obvious symptom. Note also the facts of varying analgesia, the typical changes in the color-fields, the equally curious alterations in these, and you have before you a case of hysteria with some very unusual additions.

As you see her walk, with the aid of two nurses, she usually lifts the feet high, and throws them, so to speak, in a disorderly way. With shut eyes, her motions are all worse, as you may perceive when the ataxic hand-movements are thus studied. You would have no doubt, at sight, of hers being a case of typical posterior sclerosis, and now you would have still less doubt if you recall the fact that she cannot tell the difference as between the weight of a penny and that of a silver dollar. The exact facts are better

[1] Weber used the method of "least observable differences" as applied to sensations of pressure and the measurement of lines by the eye, but Fechner expanded it and assumed that all just observable differences are equally great; so that the law is sometimes called "Fechner's law." Expressed in another way, the results depend on (1) strength of stimuli; (2) degree of excitability. If *two* is constant and *one* is then varied, it is found that if the stimulus be doubled, trebled, etc., the sensation only increases as the logarithm of the stimulus (*e. g.*, stimulus 10, 100, and 1000 times, then sensation increases 1, 2, and 3). There is a *lower limit of excitation liminal* intensity and an *upper limit of excitation liminal* intensity. Thus above this no appreciable increase in sensation can be distinguished. This is called the "range of sensibility." Thus, with 10 grams in the hand, we have to add or remove 3.3 grams before a difference in sensation is perceptible. In 100 grams we would have to add or withdraw 33.3 grams.

[2] Professors Fullerton and Cattell published, in 1892, a pamphlet in the Philosophical Series, University of Pennsylvania, on "The Perception of Small Differences, with Especial Reference to the Extent, Force, and Time of Movement." Ten normal persons were examined.

[1] After the administration of ferri pyrophosphas in divided doses up to 95 grains in some 70 hours, the blood-count showed increase of red blood-corpuscles to 4,160,000, and of hemoglobin to 70 per cent.

related in the case-notes. Apparently she has more or less loss of the sense of amount of muscular exertion put forth, loss of muscle-sense.

Naturally, I look with suspicion on a hysterical woman long in hospital-wards, but as to the facts I have stated, I do not think we can have been deceived. I shall presently return to this matter of loss of muscle-sense.

Considering the case as ataxic, such as we see here at every clinic, you would be surprised to find, as I now show you, that we have normal knee-jerks, elbow-jerks, and muscle-jerks, and also normal reinforcements. The responses are not spastic, and the limbs are not like those of people with lateral columnar disease and "lead-pipe" passive flexion. There is no clonus: I can get no ankle-jerk by a blow on the tendo Achillis or on the sole of the foot. I can call out this response by motor or sensory reinforcement. But for this remarkable exception I should have almost no indecision as to how to characterize this deeply interesting case. Perhaps I should not give too much importance to the partial loss of ankle-jerk, especially in a case so profoundly hysterical. Is this case, then, an hysterical ataxia due to hysterical loss of muscle-sense? That this should be, along with preservation of muscle-reflexes, and with no tactile sense, and only variable cutaneous analgesia, is interesting and unusual, and, let me admit, a little puzzling. We may not too readily conclude. Hysteria confuses, but does not exclude organic spinal maladies, and the partial loss of the lowest muscle-reflex is suspicious. But there are no other signals of posterior sclerosis, no pain, no reflex losses in the ataxic arms, no eye-signs. On the whole, I conclude that we have here an unusual type of hysterical disorder of movement.

Briquet, whose pictures of hysteria look to me a little too vivid, described a form of ataxia due to loss of both skin-sense and muscle-sense. He seems to think that the loss of the latter is not to be met with until the former has become positive. With this double loss comes incapacity to effect a motor purpose without seeing the acting member. With view, he says, the muscular acts are perfect. This is not the case in our patient, nor do I think it ever is in these cases precisely as he states it. The sight helps the true hysterical ataxic, but does not enable her to attain ease and perfection in her acts. In the present case there is probably a partial loss of muscle-sense which is hysterical, and very exaggerated motor consequences.

The interest of it lies in the isolated loss, without equal absence of cutaneous tactile sense. I have often seen more or less surface-anesthesia with more or less or no loss of muscle-sense. The great defect of this latter seen in our present case, without any notable tactile loss, is more than merely uncommon. Again, with the ataxia and failure to estimate differences in weights, we have complete muscle-reflexes—all of which make one suspect that the cause of ataxia may lie above the planes of these reflex areas.

In the same ward is a girl of twenty-two, who has the more common form of hysterical ataxia which I described many years ago. She is now nearly well, but a month ago her walk was a thing most interesting to see. She walked as a jointed doll endowed with life might walk, a succession of jerky abruptly-ended movements, with sway of head and body back and front, or to right and left. For a fuller account I refer you to my original delineation of this singular form of disorder.

Our patient was put alone in a room, given very decided faradic currents to the muscles with the wire brush on a dry skin and daily full massage.

She has been rapidly improving. At first, to aid her steps, she used the device I described long ago as crutch-canes, but she can now walk unaided; she has deserted her bed; knits and sews, and altogether seems a gratifying and prosperous case.

April 23, 1894. Her station is good with closed eyes. Sensation is now normal in all forms, and the obvious delay in perception exists no longer. She can now walk some twenty feet unaided. I do not feel at all secure that she will ever be entirely well.

MOOTED POINTS AS TO FRACTURES OF THE ARM, WITH NOTICE OF AN IMPROVED SPLINT.[1]

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of Atlanta, Ga.

It is my purpose in this paper to ask the attention of the Fellows of the Association to some practical considerations touching the treatment of fractures near the articulations of the arm. There have been divergent views of surgeons as to the management of the osseous lesions in close proximity to the wrist-joint, the elbow-joint, and the shoulder-joint, so that so far as may be practicable, it devolves upon us to arrive at uniformity of practice.

To a considerable portion of the profession it may appear that "old things are passed away, behold all things are become new." But there are still some among us who prove all, and hold fast to that which is good. It is to those who are disposed to judge surgical appliances by their merits, and not by their novelty, that I appeal for a correct decision of these mooted points. I am impressed with the benefits likely to accrue from an interchange of the observations of different surgeons upon this class of fractures, and I trust that those having had expe-

[1] Read before the American Surgical Association at its meeting at Washington, D. C., June 1, 1894.

rience in the management of them may join in the discussion.

It may be promised that, in cases of fracture complicated with dislocation, there is not any good reason for carrying out the injunction of some authorities to set the fracture and splint the bones before proceeding to reduce the dislocation. It is not often that such an adjustment of the fragments of the bone can serve or be made available for leverage or rotation in correcting the dislocation; and whatever may be the appliance, it must necessarily be deranged by the efforts to effect the replacement of the luxated bone. Of course, the readjustment of the dressing will devolve upon the surgeon, after undertaking the reduction of a dislocation under such circumstances, and hence it has to me appeared best to resort to any and every means for reduction before setting the fracture.

The management of dislocations in joints contiguous to fractures must claim careful consideration in treating such cases, and it is encouraging to note the success that has attended the devices for correcting luxations in advance of adjusting the dressing for the fracture.

As this is not entirely germane to the object of this paper, I will not enter into details, but simply insist that in every case of fracture near an articulation complicated by luxation, the correction of the latter should be a preliminary step to treating the fracture. Whether at the wrist-joint, the elbow-joint, or the shoulder-joint, this plan holds good for the observance of the surgeon, and he who fails to adopt it must encounter increased difficulties in securing a satisfactory result. Not only should the luxation be corrected at the outset, but efficient measures should be resorted to for obviating recurrence of the dislocation before proceeding to adjust the broken bone.

Instead of proceeding, as is usual in the description of fractures, from above to the lower part of the arm, I shall consider this plan as more honored in the breach than in the observance, and commence with the wrist, as was done by Gross in his work on *Surgery*.

The only fracture of this portion of the arm in regard to which there is any noteworthy feature of divergence in practice is that of the lower extremity of the radius, known as Colles' fracture. This occurs generally at a distance of from a half to an inch, more or less, from the carpal articular surface, and may be transverse or with an obliquity inward or outward on the part of the lower fragment. It is accompanied with a characteristic deformity of the wrist, corresponding to the shape of a silver fork, and may be complicated by a displacement of the styloid extremity of the ulna. The adjustment may be effected in most cases by extension upon the hand and pressure over the projecting lower fragment, but there is usually much difficulty in maintaining the apposition of the fragments.

It is remarkable that devices so different in their practical operation should have been adopted by surgeons for the correction of this deformity; and the names of authorities in various eras have been associated with splints for Colles' fracture, of great variety in form and application. One considers it best to have a single dorsal splint reaching to the carpal bones; another holds that a palmar splint, having a prominence within the hand, is all that is needed; still another claims that dorsal and palmar splints, extending only to the hand, with appropriate compresses next the respective surfaces, are requisite. But a time-honored appliance, which bears the name of Nélaton, with one or two splints having a pistol-handle curve at the hand, extending from the elbow to the ends of the fingers, has been adopted by some throughout all the changes, and with a satisfactory result. I need not dwell upon the multiform devices introduced at different times by surgeons for this class of cases, as you are all presumed to be familiar with them. But while the conditions to be fulfilled are the same, we must use a wise discretion in selecting that mode of treatment which accomplishes the best results. I realize fully all the difficulties to be met, and recognize the claims made for many of these so-called improvements in dressings for Colles' fracture, yet the ground of the objections to the splints with a pistol-handle curve in these cases is not valid. It is held, for instance, that they do not admit of mobility of the fingers and the carpal bones, and hence that there is increased liability to stiffness of these parts subsequently. If there is any just foundation for the rule in surgery which I have been accustomed to inculcate, that in fractures the immobility of an articulation on the distal side shall be secured in dressing such injuries, then the apparatus for Colles' fracture should control completely any movement of the wrist-joint and the fingers. This is effectually accomplished by the splint originally adopted by Nélaton, and used to a greater or less extent since by surgeons of this country and of other countries throughout the world. If these parts are kept at rest from the very outset of the treatment, without undue constriction, there is decidedly less tendency to inflammation of the structures involved than under the plan of frequent movements of the wrist and fingers, which have been insisted upon by those opposed to the pistol-handle splint. I am convinced that the inconvenience and danger of confining the hand in a state of extreme extension toward the ulnar side have been very much exaggerated, and that its advantages will be realized by all who use the proper precautions in carrying it out.

The dorsal and palmar Nélaton splints, with appropriate padding and compresses, serve to keep the fragments of bone on the outer and inner aspects of the arm in their proper position, and with the extension effected by curvature of the hand from the radial border by the pistol-handle shape all the requirements are met for the prevention of deformity. Those who have adopted other measures without first having tried this should put it to the test of experiment.

I am not urging the claims of the pistol-handle splint upon theoretic grounds, but from practical observation of its advantages in the treatment of Colles' fracture. It seems to have been employed by some with bad results, but I am impressed with the fact that the application of palmar and dorsal splints, which do not press unduly upon any portion of the hand or arm, is not attended with any unfavorable effects. The placing of a splint either anteriorly or posteriorly, which extends only to the wrist and is secured in position by adhesive strips or bandages encircling the arm, is more liable to produce engorgement of the structures of the hand than the uniform support given by a roller-bandage, with splints extending from the ends of the fingers to the elbow. Again, the injunction of the advocates of leaving the fingers exposed, that movements of these and the carpal bones should accompany the treatment, is more likely to increase the local inflammation than a process to maintain complete rest.

Early movement of the fingers and the carpal joint must increase the tendency to subsequent stiffness from the aggravation of the inflammation in the sheaths of the tendons leading to their adhesion. Thus the effect, which we should seek to avert by rest is induced by early passive and active movements. It is undoubtedly true that inaction of a part for a considerable period is followed by inability for a time to accomplish voluntary movements of the structures involved. But if there have been no inflammatory developments, there will be no adhesion of the tissues, and passive motion will soon restore mobility to the parts. After considerable experience with the double pistol-handle splints in the treatment of Colles' fracture I have not observed a single case in which there has remained any permanent impairment of the use of the fingers or of the wrist-joint, nor has any material deformity at the point of fracture followed this treatment. A recent cure confirmed all that is claimed for it.

The next division of fractures to which consideration is asked pertains to the bones above and below the elbow-joint, not leaving out fracture of the olecranon, though this is being treated generally by the same methods as were adopted long ago.

With the exception of the head and neck of the radius, in which fractures rarely occur, there is a great liability to osseous lesions in the vicinity of the elbow-joint, and no class of cases appeals with more urgency to the surgeon for a clear diagnosis and for the adoption of precise measures for treatment.

Dislocation of the head of the radius or the upper part of the ulna is frequently observed in connection with fractures of the lower extremity of the humerus, making grave complications and requiring correction before proceeding to dress the fracture.

The feasibility of adopting any general principle in regard to the relative position of the arm and forearm which shall meet all cases is of paramount importance. A wide diversity in this respect has long existed among surgeons of prominence, and more recently the claimants for the flexed and for the extended position of the arm have contended strenuously for their respective plans of treatment. There may be such a difference in the conditions involved as to warrant the preference for the one or the other mode in special cases, and perhaps some surgeons may secure a satisfactory result in fractures near the elbow with the extended position of the arm, while others may find the flexed position most advantageous. It behooves us, however, to investigate very thoroughly all the bearings of these different modes of dressing the arm, when there is likely to be such inflammatory involvement of the articulation as to induce ankylosis of the elbow-joint. All must know how useless to its owner is a stiff arm in a straight posture, and also how convenient it is to have a stiff arm flexed so as to approach a right angle. While it is held that, with proper precautions in the management of these fractures, ankylosis should not occur, yet there are cases with such complications in which this result will ensue in spite of the best directed treatment. If the surgeon is called upon to treat an injury about the elbow in which he cannot reasonably expect to arrest ankylosis of the joint, there remains no question as to the propriety and even the necessity of employing the apparatus of angular form in dressing the fracture.

But a decision in regard to adopting the straight or angular splint should be made upon a basis of adaptability to the special conditions presented in the case, and while it may be discussed from a theoretic standpoint, the only final solution must depend upon the comparative results of the two processes. The practicability of maintaining the fragments of bone in proper apposition, when the fracture involves the articulation or is in close proximity to it, is promoted rather by the flexed than by the extended position of the arm after proper reduction has been effected.

Should there be a fracture immediately above the condyles, the lower fragment is in my observation prone to project forward, and bringing the forearm

up to a right angle, or even to an acute angle, assists in keeping the fragments in apposition. If the projection of the lower portion of bone be directed backward, and it can be forced into line with the shaft of the humerus by direct pressure accompanying extension, then the flexed position may be adopted with advantage in applying the dressing to maintain apposition. The rather fanciful claim in favor of the extended posture being favorable to preserving the outward angularity of the forearm upon the arm is not entitled to any special consideration, as there is nothing in the flexed position to interfere with this relation of the radius and ulna to the humerus in the restoration of the bony structures.

The comfort and convenience of dressing the arm in a flexed position for fractures near the elbow commends this position strongly in preference to the extended position, and it is to my mind totally inexplicable why a straight splint should be used, except for fractures of the olecranon.

Of course, the utmost care is requisite to detect the exact osseous lesion of either bone, and whether the injury involves the lower portion of the shaft of the humerus, its condyles, epicondyles, and the epitrochlea on the upper border of the articulation, or the upper part of the ulna, with the coronoid process and the neck of the radius on the lower border, there is an urgent demand upon the surgeon for the greatest diligence in restoring the parts to their proper position. The establishment of their normal relations to each other should be the aim of our manipulations, and when this is not practicable we must count upon more or less deformity as a consequence. Without disregarding the apprehensions of authorities as to the dangers of constricting the limb unduly by a bandage, I find a roller applied from the fingers along the forearm and extending above the seat of injury to be advantageous, having the arm flexed at the elbow to a right angle. This angularity calls for support of like form, and taking the sound arm as a model, the outline is marked out upon large thick pieces of pasteboard, so as to extend from the wrist to the shoulder, corresponding to the outer and inner aspects of the limb. The board is cut so as to meet on the anterior and posterior median lines, is then soaked in water and molded accurately over a thin layer of cotton-batting around the entire member. If the edges are notched at a single point in front of the joint and at two points behind the joint the adaptation to the curve of the elbow will be more satisfactory. Should the sheets of pasteboard be light, several layers may be put together and held in place by a roller bandage before applying them. They are secured by a bandage passed from below upward, while an assistant turns in the margins to be molded with only sufficient force to afford proper support to the structures about the elbow. After completing this application a dry, strong, angular pasteboard splint, or one of pine board should be bound to the inner side of the arm until the moistened pasteboard mold shall dry and become firm.

This mode of dressing has all the advantages of the plaster-of-Paris in its accurate adaptation to the parts and its efficient support, while it can be removed and reapplied daily if requisite.

The results obtained by this mode of dressing fractures near the elbow in young subjects have proved entirely satisfactory, not being followed in any case by ankylosis or permanent impairment of the movements at the joint. A comparatively small number of adults have been treated by this method, yet these have progressed favorably in every respect, and recovered full and free action of the arm.

Three months ago I had occasion to treat a laboring man, who sustained a fracture of the internal condyle, with a backward dislocation of the ulna, which was followed by extensive general inflammation about the joint and forearm. After reduction of the dislocation and coaptation of the bone, pasteboard was fashioned from the sound arm into angular splints, and after being moistened was molded to the palmar and dorsal surfaces of the injured arm, and placed at a right angle, with the thumb protruding in a directly vertical position between the splints.

The splints extended from the shoulder to the tips of the fingers, over layers of cotton-batting adjusted to the irregularities of the limb, and secured throughout the entire length by a roller-bandage. The forearm was then suspended in a sling around the neck, with the injunction to keep the arm at rest. Upon removing the dressing at the end of a week there was considerable ecchymosis, with swelling about the elbow, and friction with a liniment of spirit of turpentine and olive-oil, each two ounces, and pulverized camphor two drams, was practised freely before reapplying the firmly molded outer and inner splints with the roller to support them. The dressing, with the friction, was renewed every three or four days, without attempting any movement at the elbow for a month. Afterward passive motion of the joint was cautiously practised at each dressing, and gradual improvement has been observed, but there is still impaired mobility of the elbow. There is, however, no ankylosis, and I feel assured that, with use of the arm, which the man is now making in his daily work, the normal movements will be completely restored at the elbow-joint. I doubt very much whether such a favorable result could have been effected by treating this case with the arm in the extended position.

It is claimed by the advocates of extension of the arm in the early treatment of fractures near the elbow-joint, that in cases liable to become anky-

losed the limb should be gradually brought into the angular position. But this necessitates the very movement of the articulation that will aggravate the inflammation, and increase the tendency to ankylosis. On the contrary, if the arm is originally put in an angular position, affording the greatest utility to the member, it can be kept at rest in that position until all inflammation has disappeared.

The last questionable point to which reference will be made is that touching fractures near the head of the humerus. These may be intracapsular, involving the head and the anatomic neck, or they may only implicate the tubercles outside of the capsule. The most frequent seat of fracture, however, is through the surgical neck, which extends from the line of epiphyseal union to the attachment of the latissimus dorsi and pectoralis major muscles. The lines of fracture in those portions of the upper end of the humerus may be in various directions, and being covered with the thick structure of the deltoid muscle, the differential diagnosis is attended with great difficulty.

But, fortunately, the verification of fracture in any direction of this part of the bone will suffice for the adoption of measures suited to the case, and it is for this class of fracture that I have devised and adopted a special splint. The object being to effect extension and counter-extension, so as to keep the fragments in their proper relations to each other and at rest, this splint is well adapted to fractures of the shaft of the bone.

There is a description of this splint in my report upon "Fractures of the Arm," published in the *Transactions of the Medical Association of Georgia* for the year 1887. The case was considered appropriate for a splint having the effect of extension and counter-extension, with complete immobility of the fragments of the bone. It is formed with a right angle in the plane of the boards at the elbow, the upper branch extending into the axilla with a crutch-like termination, and the lower branch reaching the wrist, so that when fitted to the inner face of the limb, and secured by a bandage, with a light board splint molded to the outer aspect of the arm over the fracture, all the conditions are met for retaining the fragments accurately in apposition. It is requisite that the arm shall be kept close to the body by a handkerchief or a piece of cloth, in a triangular shape, passing under the elbow and forearm, and around the neck, so as to be supported. Angular splints, extending from the wrist to the axillary space have been employed by others, but the crutch-shape above is the special feature of the splint.

The same principle of extension for fractures of the humerus was presented many years ago in an apparatus of Lonsdale and in appliances of S. W. Hind, so that I do not lay any claim to priority, though unacquainted with their devices when my plan of treatment was originally adopted. The plan adopted by them was to attach a crutch-shaped piece of metal to the brachial limb of the splint, which was operated by a screw and cogs to adjust it to the length of the arm in different cases.

The wooden splint is measured by the sound arm, with the crutch projecting beyond the axillary folds, so as to have firm resistance when the lower branch is bound to the forearm of the affected limb. An opening is made at the angle, so as to avoid pressure upon the internal projection of bone at the elbow. The brachial face of the splint is padded with cotton-batting, and the concavity of the crutch is also well padded, while the cotton is secured by turns of a roller-bandage. When this splint is accurately fitted to the individual case it meets all the indications for fractures of the upper extremity of the humerus in a most efficient manner.

A fracture of the surgical neck of the humerus extending to the tubercles has recently been treated with this angular crutch-shaped internal splint, in the person of a white man of forty-five years of age, by my son, Dr. J. McF. Gaston, Jr. It was suspected at the outset to be complicated by a luxation of the head of the humerus, but an examination under the influence of an anesthetic eliminated this doubt in regard to the nature of the injury, and the diagnosis of fracture was confirmed by the evidence of crepitation. There was considerable inflammation about the shoulder, as three days had elapsed since the reception of the injury, and the slightest movement was attended with great pain, so that the anesthesia was essential for obtaining the information requisite for a correct view of the case. A medical attendant had at the outset entirely ignored the nature of the injury, and entered upon a course of treatment under the supposition that it was only a severe contusion of the part from a fall on the shoulder.

The angular splint with the axillary crutch, and the lower branch extending to the fingers, was excavated at the angle to accommodate the internal epitrochlea, and being properly padded, was ready for adaptation to the inner aspect of the left arm. A roller-bandage, applied from the fingers to the shoulder, to obviate the irregular contractions of the muscles and to prevent the extension of swelling to the forearm, should have preceded any other dressing, but was omitted in this case, in compliance with the practice of some high authorities on the treatment of fractures. With a layer of cotton-batting enveloping the entire arm, the crutch-extremity of the angular splint was pressed up firmly against the axillary fold, and the forearm held by an assistant in contact with the lower branch of the splint, while a roller-bandage was carried around the limb from the hand upward, securing also an outer splint molded to the humerus and the shoulder.

Thus support, with extension and counter-extension, was effected. The lower transverse branch of the splint, having the forearm firmly fixed to it by the bandage, kept up the extension, while the crutch-shaped portion pressing against the axillary fold maintained the counter-extension. It will be understood that the addition of the outer splint molded to the shoulder and supported by the bandage fulfilled all the conditions for securing the proper coaptation of the fragments of bone at the surgical neck of the humerus. The patient was provided with a sling, passing under the forearm and around the neck, so as to support the limb when in the erect posture, and expressed himself as being more comfortable than at any time since receiving the injury.

Upon redressing the arm, after the lapse of several days, it was found that there was a tendency to swelling of the hand and forearm, whereupon the roller-bandage was applied directly to the limb, and was kept up afterward with good effect.

After the lapse of six weeks the angular crutch-shaped splint was dispensed with, and the bony union was firm, but with exuberant callus there was considerable enlargement of the upper extremity of the humerus and inability to accomplish upward movements of the arm. Passive motion, backward and forward, could be made with facility, and by continued use of the liniment of camphorated oil and spirit of turpentine about the shoulder the upward movements have so improved that after nearly four months the man is able to use the left arm in the performance of most of his duties as a carpenter. The callus has been so far absorbed as not to leave any deformity, and the prospect is very favorable for complete restoration of the functions of the arm within a brief period.

It may not appear that the results in these special cases are conclusive, but, with an experience of many years favorable to these modes of dressing the respective injuries of the arm, I feel warranted in commending them to the confidence of the profession.

GYNECOLOGY AMONG THE INSANE, FROM THE GYNECOLOGIST'S POINT OF VIEW.[1]

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BUT a few decades have passed since the mentally alienated were looked upon as outcasts, possessed of devils, witchcraft, and altogether inhuman. The necessary protection of society from such monsters in human form led to their incarceration in prisons, where they passed their lives in misery, in many instances chained to floor or pillar, unkempt, half-naked, and wallowing in their own filth.

[1] Read before the Michigan State Medical Society, May 4, 1894.

As the increasing number of this unfortunate class made other accommodations necessary, asylums were erected for their reception, but the prison-system still continued, until in the natural evolution, of knowledge, men began to understand that mental derangement was *not* crime but disease, and humanity demanded a more rational and kindly treatment for its kith and kin.

Until quite recently, however, the housing, clothing, and feeding of the insane was considered all that could be done or was necessary for these unfortunates. But increasing experience soon taught that this was not sufficient; that if the mentally sick were to recover, if they were ever again to assume their places in society as responsible men and women, other means besides the supplying of their animal wants must be brought to bear upon their condition.

And so to-day, in the leading institutions of this country and abroad we no longer find bare walls and desolate halls filled with the unemployed, but rooms made bright and cheerful with pictures, flowers, and birds; and hygiene, work, and amusements have become important factors in the treatment of insanity. In other words, mental derangement being now regarded as a brain-*sickness*, the asylum has assumed the functions of the hospital, and the prison-idea has been relegated to oblivion. But even the progress that has been made during the past few years is not at an end, for the good work so well inaugurated must still go forward, and the various *ailments* that afflict the body must be investigated and relieved. It is along this line, as surely as in the study of mental pathology and symptomatology, that advance in the future is to be made, and I here prophesy that the time is not far distant when no patient will be dismissed from the asylum as mentally cured until all morbid somatic conditions from which he may be suffering have also been relieved, or, if incurable, ameliorated as much as is possible.

I am here to-day to reiterate what I have so often said and written, that the insane, even the hopelessly demented, have as great a right to relief from all somatic ailments as those whose mental integrity has rendered asylum-hospital treatment unnecessary.

That insane women are as capable, in most instances, of suffering as acutely from local disorders as the sane has been demonstrated time and again, and that these affections often have a greater or less influence on their mental condition is now too well known to require comment. A careful perusal of the reports of our leading asylums will convince even the most skeptical that these are not theories but facts. The question so often brought forward is: Will the relief of these conditions restore the patient to mental soundness? I maintain that this

view of the subject is both wrong and inhumane, and that the query should be: Will it do the patient good, relieve bodily suffering, and perhaps in this way ameliorate the mental symptoms manifested? Not every sane woman suffers from uterine or appendiceal disease, nor does every insane woman so suffer, although I am inclined to think that the proportion is slightly greater in the latter class than in the former, but in any community of several hundred souls there will be found some that are thus afflicted.

In the majority of asylum-cases the patients are quite capable of describing the nature of their sufferings, and to ask for help; but in a few the mental state may be such as to prevent this. In such instances, the watchfulness of the trained attendant detects by the manner, the expression of countenance, and general attitude of the patient that something is wrong and demands investigation. Such appeals from the helpless wards of the State should not be neglected, and I am happy to say that, in Michigan asylums at least, they are never disregarded.

In regard to the local treatment of the insane, I may say that in my experience it has given very satisfactory results, and I can see no difference between the sane and the insane in this respect. In a number of instances I have performed various minor operations upon asylum-patients, such as the restoration of the lacerated cervix and perineum, the removal of the carcinomatous breast, etc. Such operations do well as a rule in the insane, and, by the relief of the peripheral irritation, have a more or less decided influence upon the mental symptoms of the patient.

Perhaps, however, the greatest interest in this whole question centers around abdominal surgery in the insane. In a recent paper on this subject[1] a number of cases of celiotomy, embracing such conditions as fibroids of the uterus, ovarian cysts, ventral hernia, and chronic appendiceal disease, upon which I had operated were considered in detail, and to this paper those who are especially interested in the subject are referred.

There can be no doubt that surgical procedure for the relief of suffering, when gross pathologic changes have taken place in organs or parts, is generally quite justifiable. My results from the removal of new growths, etc., have been eminently satisfactory, and in all but one case recovery from the operation has been rapid and uneventful, and in nearly all instances have the patients improved mentally. Indeed, so frequently have the mental manifestations undergone a decided change for the better that I have now come to look for this almost as certainly as for recovery from the operation.

[1] The Physician and Surgeon, May, 1894.

In discussing this question, however, we must guard against taking too optimistic a view of the subject, for, in all my experience, I have never yet seen a patient entirely relieved of her mental disorder as the result of operative treatment. In a few of my cases the marked mental improvement following the operation has given rise to the hope that an ultimate cure of the brain-sickness might result, but other conditions being present, over which neither medicine nor surgery can prevail, have led to disappointment.

To the castration of women for the cure of insanity I am utterly opposed, and I believe that the operative furor which is now so prevalent in this country has led to many unnecessary and unjustifiable mutilations of these helpless women, which otherwise would not have been tolerated. Such procedure, in my estimation, is not only to be deprecated but also denounced, and the abdominal surgeon who undertakes to cure mental alienation by this means brings discredit not only upon himself, but upon the specialty that he represents.

In the hystero-neuroses, when the symptoms point to the tubes or ovaries as the source of irritation, the removal of the healthy adnexa is at times quite warrantable, and the end often justifies the means. In insanity, however, the pathologic changes in the cord and brain upon which the condition depends should indicate to even the most superficial observer that ablation of the normal appendages can have no curative effect.

In summing up my conclusions, based on many years' experience in the practice of gynecology among the insane, I have no hesitancy in presenting the following:

1. That insane women have both a moral and a legal right to amelioration from suffering dependent upon local disorders, without reference to the effect that such relief may have upon their mental condition—that is, as regards cure.

2. That indiscriminate operating upon the insane, especially the removal of the normal appendages for the so-called cure of insanity, is not only to be deprecated on account of its utter uselessness, but also denounced because of the unnecessary mutilation of the patient.

32 ADAMS AVE., W.

STUDENT VERSUS MEDICAL SCHOOL.

BY BAYARD HOLMES, M.D.,
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IN an article by Dr. Allis in THE MEDICAL NEWS of June 16, p. 661, medical schools are charged with farcical entrance-examinations, with unusual and burdensome courses of study, with cramming and quizzing for hospital-appointments,

with exacting examinations, and with plucking a large percentage of students under any circumstance.

Are these charges to be sustained?

It is a fact that all applicants are received in most medical schools and that the entrance-examinations are farcical, except in the State of New York, where they are puerile. There are individual exceptions to this rule, probably to the number of ten medical colleges, or, say, one-tenth of the total number of schools.

Is the course of study burdensome in its extent? Certainly our present courses, as laid out in the announcements of 1893–94, are still very far from equivalent to four years' work in any other department of the university. The method of teaching, which is a natural consequence of its motive, is bad, in every way bad, from a pedagogic standpoint. In this, of all professional schools, the true relation of physiology and psychology to the course of study and to the order and quantity of work should be exemplified. But nothing of the kind is the case. No medical school, so far as I know, makes any serious attempt to teach experimental psychology. In no one are the courses arranged with a pedagogic regard for sequence, and in no one does that first law of teaching, "The concrete before the abstract," receive the least recognition. If the student is overcome with much work and with too many studies and too many examinations, it is because the year is not properly divided into three or four terms of three or two months each, and the many subjects of the year equally divided into portions, one for each term, with final examinations at the end of the term; or, again, it is because the subjects are presented to the students in an unscientific and unschoolmasterly way, so that the students are not educated but crammed. In any case it is not because the medical schools attempt too much, but because they attempt to use the methods of our ancestors.

Let us admit that in law-schools a better method has been introduced, the case-system, and that in theology more careful and thorough methods have long been used. Let us admit that the schools of medicine attempt to teach in classes entirely too large for efficient instruction. Nevertheless, the fact remains that the course of study is not more extensive than the welfare of future patients demands. In regard to the number who are annually "plucked" at the final examinations not much can be said. If all were graduated, there would be another crime added to those already committed. The absurd custom of graduating all together at only one time in the year, with sound of trumpets and with display of flowers and wine, is in bad taste and is unscholarly and undignified. There ought to be at least four equidistant days in the year for awarding diplomas, and then only on the completion of all the work of the course. It is a physiologic absurdity to make an ironclad course of study, an ironclad classification of students into four classes, and then graduate them on a single day after passing an ironclad examination. The educator would devise a system that would allow a strong student to do more work than a weak one. He would not have more than thirty men in any one class under any teacher at the same time. He would not allow a man to take more than four recitation-hours of work a day. He would humanely vary the exercises of any one student and guide him in the selections of his studies.

The educator would tear out the absurd amphitheaters in our medical colleges. He would increase the number of professors in every branch. He would separate the examining department entirely from the teaching department and have one man at its head. He would make the course of study flexible and constituted of an obligatory portion and an elective portion. He would limit the duration of any one course to three months, and he would require at least two examinations during each course. He would have libraries in each and every department, in each and every laboratory. He would see to it that each teacher knew the men he taught and examined.

In relation to the law that recognizes the medical schools and their diplomas, Dr. Allis' points are well taken. The State gives the education of physicians into the hands of physicians and virtually says: "Do this as you please; make what you can out of it. We will let no one practise whom you do not graduate. We will take care of, educate and support the blind that result from the careless and untrained men you send out and of the deaf-mutes that follow the epidemics you treat, all at a cost of $2,855,694 (1890), but we will not give a cent to medical education or to the supervision of medical schools. We have $750,000 a year to invest in the study of diseases of swine; our schools of theology have been liberally endowed by pious citizens ($28,000,000), and our State universities have liberal provision for the study of the Semitic languages, the problems of mining, engineering, and architecture; but not a dollar for the study of the diseases of men." Hogs are of more account to these United States, in the opinion of legislators, than are healthy men. There is no lobby in our halls of legislation from the coming generations, and their parents are too busy with the affairs of to-day to protest against the unfair discrimination against the baby and in favor of the pig. And still the production of defectives goes on. For example: in 1850, in each million 422 were blind: in 1860, 403; in 1870, 527; in 1880, 976; in 1890, 805. The production of other defectives is in about the same proportion. The State, county, and city support hospitals and deny

their use to the medical schools and medical students who will soon be licensed physicians. It would pay the State, even if it were not its duty as the only capable corporation and the one most interested, to support, direct, and conduct all the medical education of the country. This will be done so soon as we, as a nation, value men above all other products of our clime, so soon as men believe that the Kingdom of Heaven may come here in this world as the *Pater Noster* indicates, so soon as selfish men cease to exploit for their own aggrandizement the sacred labor of medical education, so soon as our universities apply the same ethical and pedagogic principles to their medical departments as they use in directing their other graduate schools.

CLINICAL MEMORANDA.

THE DANGERS OF COCAIN.

BY ROBERT W. HAYNES, M.D.,
OF LOS ANGELES, CAL.

THE medical literature of the past year abounds in recommendations of the use of cocain in all sorts of disease, from nasal catarrh to melancholia, and with little reference to the likelihood of the formation of the habit.

One eminent authority and teacher goes so far as to say: "The moderate daily use of coca, according to our best information, is not injurious and increases the working powers;" again he says: "It will probably come into use to sustain men under severe exertion."

The same gentleman refers to cocain hydrochlorate as being useful in one-grain doses as a stimulant to soldiers undergoing forced marches.

Dr. Hammond says: "We have heard a good deal of the cocain-habit—a habit that I am very sure has no existence as such—there is no weakening of the will-power, and there is not as much trouble in ceasing its use as giving up tea or coffee."

As a slight protest against what appears to be a grave error in the estimation of the harmlessness of this terribly seductive drug, the following cases that came under my personal notice are related:

CASE I.—N. E. W., a physician and an opium-eater for years, though absolutely free from symptoms of poisoning, commenced with cocain, gr. ss, hypodermatically to see what effect it would produce. Flushing of the face, dilatation of the pupil and general stimulation ensued. On the following night gr. j hypodermatically was necessary to produce the delightful *bienfaisance* that far exceeded that produced by opium, a feeling of not having a care in the world; of peculiar physical and mental beatitude. The dose was gradually increased until 5 and 10 grains in the twenty-four hours were taken. The irresistible desire for frequent repetitions of the dose was present, as the euphoric stage, though present until the end, grew shorter. The usual neurasthenic symptoms soon appeared, with delusions of persecution and hallucinations of sight and hearing, bright discs of light appearing on the walls throughout the sleepless nights. Loss of memory, muscular incoördination and aphasia followed.

Twice during the existence of the habit over-doses were taken that caused alarming dyspnea, a hardly perceptible and thready radial pulse, extreme mydriasis, pinched skin and drenching perspiration, accompanied by loss of muscular power. These symptoms, in common with those produced by a debauch, were soon relieved by his ordinary dose of two grains of morphin.

This man abruptly abstained from the use of cocain, at three different times, for the space of several months, and has not used the drug for the last nine months.

CASE II.—H. R. N., a druggist, commenced the use of a 4 per cent. solution of cocain as a nasal spray to deplete the erectile tissue, and gradually increased the amount until seven grains were used at a single sitting. Loss of appetite, sleeplessness, headache, constipation, and loss of flesh followed. Muscular incoördination, hebetude, and enuresis then appeared; the last was almost immediately checked by the use of paregoric. Realizing the danger of the habit, the use of the drug was discontinued.

CASE III.—S. E., a physician, first used a 4 per cent. spray of cocain to relieve chronic rhinitis, but continued its use for the stimulation it produced. Finding the effect on the mind very deleterious, as manifested by mental incoördination, he discontinued the practice, but is of the opinion that for many weeks afterward his mental powers were weakened.

CASE IV.—X., a child, two and one-half years old, received at the hands of an experienced surgeon, a urethral injection of gr. ss of cocain, to facilitate the passage of a sound. In a few minutes clonic convulsions with wandering delirium set in, with the usual train of symptoms of acute poisoning, which terminated fatally in three days.

CASE V.—As this is written, news comes from Arizona of the death of a friend at the hands of a dentist, by the injection of four grains of cocain into the gums prior to the extraction of teeth. The patient died in convulsions in an hour, from probably the medicament entering the circulation immediately, and expending its full force on the heart.

Senor Montagessa, after taking cocain, said that God was unjust, in that he had made man to live without eating coca, and that he preferred a life of ten years of coca than one of a thousand without it.

It was my habit in the treatment of nasal troubles to order the use of cocain as a nasal spray, but I have practically abandoned the practice, save in operations, as alarming symptoms, such as dyspnea, apnea, and loss of muscular power, were produced by very small quantities of a 4 per cent. solution.

The cases reported tend to show that the cocain-habit, though abandoned much more readily than the morphin-habit, is acquired with much greater facility and insidiousness; that the remedy for cocain-*poisoning*, as in cases IV and V, is probably full doses of morphin, as indicated by its happy effect in cases I and II.

Erlenmeyer is probably correct in saying that to try to cure the morphin-habit by cocain is casting out Satan by Beelzebub.

623 SOUTH HILL STREET.

Dr. Percy F. Frankland has been appointed to the Chair of Chemistry and Metallurgy in Mason College, Birmingham, Eng.

A CASE OF DOUBLE VAGINA.

BY CLINTON B. HERRICK, M.D.,
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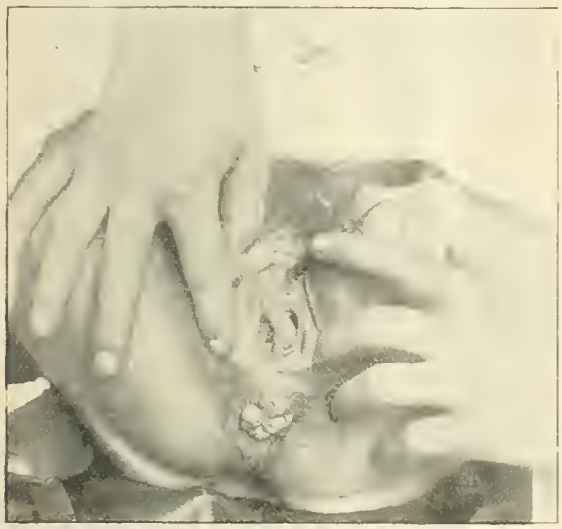
A CASE of double vagina recently presented itself to me, and seems sufficiently interesting to record. It is of interest only as an anomaly, as the patient presented herself to obtain relief from hemorrhoids, which were well marked and occasioned considerable distress. Externally, the genitalia were normal. Upon separating the labia, the condition shown in the accompanying photograph was disclosed. The unnatural septum was

FIG. 1.



continuous between the two rather short vaginæ, into each of which there projected a diminutive cervix, but only in the right could an os, continuous with the cavity of the uterus, be found. In the left vagina there was a

FIG. 2.

dimple having the appearance of an os, but into which the probe could not be made to enter. The uterus was diminutive; the other organs were normal. The woman was thirty-five years of age, had menstruated quite regularly, and, though married, had never been pregnant. The diagram delineates the relation of the parts internally.

MEDICAL PROGRESS.

The Treatment of Gangrenous Hernia.—CHAPUT (*Archives générales de Médecine*, May, 1894, p. 523) considers the treatment of gangrenous hernia one of the most complex problems in surgical therapeutics. The prognosis is always grave; whatever the treatment employed there will at all times be an inevitable mortality as a result of generalized infection. Intestinal suture is to be preferred to an artificial anus for a number of reasons. Suture does not expose the patient to the dangers and discomforts of the local condition, and not to the risk of inanition; it affords relief at a single sitting, while the other operation leaves a disgusting infirmity, ultimately necessitating multiple and grave operations. The mortality of the operation for the establishment of an artificial anus is about 28 per cent., and there is no ground to hope that this will be reduced by any technique. The mortality of intestinal suture is from 15 to 20 per cent., and there is ground for believing that these figures will be reduced. The total mortality following the establishment of an artificial anus reaches 80 or 90 per cent., while that from suture is not more than 30 or 40 per cent. The principal improvements in the operation of suture consist in free incision of the constricting tissues from within outward, a sufficient resection of the intestine, including all diseased or suspicious tissues, the employment of an interrupted circular suture, the non-reduction of the loop of intestine, and drainage of the peritoneum. Suture is contra-indicated in case of collapse, of grave peritonitis, or when for other reasons the conditions of operation are not favorable. If the lesions are not extensive it is best to invaginate them and introduce a double row of sutures. If the lesions are extensive, but do not involve the entire circumference of the bowel, one may, if the adjacent tissues are healthy, make a lozenge-shaped excision and unite the free margins as in applying an interrupted circular suture.

Progressive Dementia and Incoordination of Movement in all Extremities in Brother and Sister.—BOUCHARD (*Rev. Neurol.*, 1894, No. 1, p. 2; *Gaz. hebdom. de Méd. et de Chir.*, 1894, No. 28, p. 201) has reported the case of a male child, eight years old, that for three years had presented mental weakness, tremor, and difficulty in walking. The gait was like that of one with cerebellar ataxy; the movements of the upper extremities were also incoordinate. The reflexes were preserved and sensibility was intact. Speech was scanning and the mental processes were apathetic. In the course of a year the feet assumed a position of equino-varus and the child was incapacitated from walking. A year later the mental weakness was pronounced, the extremities had become rigid and could not be moved, and bedsores had formed. Finally epileptiform attacks set in and death ensued. At the post-mortem examination the pia mater was found adherent, but no abnormality of the brain was detected. The spinal cord presented a non-systemic sclerosis of the lateral columns and degeneration of the cells of the anterior horns. A sister of this patient at the age of ten years had for three years shown similar arrest of mental development, ataxic gait, and motor incoördination in the upper extremities, walking ultimately becoming impossible. An attack of influenza terminated fatally and

after death sclerosis of the lateral columns of the spinal cord was found. The father and mother of the patients were well, and three other children of a total of eight were living and well. The paternal grandfather had died in the sequence of an apoplectic seizure; the maternal grandfather had been an inebriate. It is believed that the cases belong to an undescribed form of family affection.

The Relationship between Myxedema and Exophthalmic Goiter.—At a meeting of the Société de Liége, held a short time ago, Canter (*Annales de la Soc. Méd.-Chir. de Liége*, January, 1894, No. 1, p. 12; *Rev. Int. de Bibliog. med., phar. et veterin.*, 1894, No. 8, 133) presented a case of myxedema in a woman, forty-two years old, successfully treated by the administration of thyroid gland of the sheep in doses of a quarter or half a gland or more daily. The treatment was attended with nausea, vomiting, and weakness, when large doses were employed, but more remarkable was the fact that the frequency of action of the heart increased from 76 to 126, while palpitation became apparent; there was also sleeplessness, tremulousness, and profuse perspiration. The opinion is expressed that the symptoms of exophthalmic goiter are due to an intoxication of gastro-intestinal origin, as a result of which the secretion of the thyroid gland is increased, with the development of the characteristic symptoms of the disease, just as they occur after the therapeutic administration of the gland. It has further been observed that the administration of thyroid gland in cases of exophthalmic goiter is attended with an aggravation of the symptoms. In the course of time the thyroid gland undergoes degeneration or atrophy, as is the case with all glands that are subjected to morbid hyperactivity.

THERAPEUTIC NOTES.

Anilin Colors in the Treatment of Carcinoma.—Mosetig-Moorhof (*Wiener medizin. Presse*, 1894, No. 20, p. 761) has reported the case of a woman, fifty-two years old, who presented below the right costal arch a tumor almost as large as a fist. For a period of nine years there had been recurrent attacks of colic of several days' duration and associated with a moderate degree of icterus. The woman was greatly emaciated, of pale-yellow complexion and flabby musculature, and the conjunctivæ were of sub-icteric hue. Upon palpation, the tumefaction was found to present a smooth, convex surface and a firm, elastic consistence, and to be only movable laterally with the abdominal parietes. The dulness on percussion merged with that of the liver. Laterally and inferiorly the tumor could be followed into the abdominal cavity; its fundus was not displaced by the respiratory movements. A diagnosis of tumor of the gall-bladder was made and an operation undertaken. Upon opening the gall-bladder some pultaceous matter was evacuated and the introduced finger came in contact with a soft, friable, yellowish new-growth, arising from the wall of the bladder and occupying the entire cavity of the viscus. By means of the finger and a spoon this growth was broken up and removed, and a small calculus was also dislodged. Histologic examination showed the neoplasm to be a villous carcinoma. The cavity was packed with gauze. On the sixth day the tampon was removed and bile made its way out of the wound. The discharge continued for three weeks, until the opening became much reduced in size and finally closed. Every two, three, or four days a small rod of methyl-violet was introduced into the cavity and nine grains of methylene-blue were administered by the mouth daily. With this treatment the woman improved decidedly, gaining in weight and strength, sleeping better, having an improved appetite, and being free from pain.

Potassium Permanganate as an Antidote to Cyanid-poisoning.—Prompted by the thought that in the treatment of acute and rapidly occurring intoxications the best results are to be expected from chemic rather than physiologic antidotes, Kossa (*Centralblatt für die medicin. Wissenschaften*, 1894, No. 17, p. 289) undertook an investigation into the antidotal power of potassum permanganate in case of cyanid-poisoning. He believed that by the administration of the permanganate the ingested cyanid would be converted into a relatively innocuous cyanate. Experiments with dogs showed that animals to which were administered toxic doses of potassium cyanid could be saved by the immediate administration of potassium permanganate; in one instance even a dose ten times the lethal one failed under these conditions to induce toxic effects. An animal that received a dose twenty times as large as the lethal dose and afterward potassium permanganate lived for a longer period of time than one given an ordinary lethal dose alone. If toxic doses of the cyanid were admixed with potassium permanganate, and the mixture permitted to stand for a few hours, no bad results followed its administration. The investigation points to the conversion of the cyanid under the influence of the permanganate into a hydrocarbonate, then into a carbonate, and finally into urea.

Methyl-violet in the Treatment of Diphtheric Conjunctivitis.—Hilbert (*Memorabilien*, xxxviii, 3, 138) has reported a case of diphtheric conjunctivitis successfully treated by the application with a brush thrice daily of a 3 per cent. aqueous solution of methyl-violet, in conjunction with warm fermentations. Subsequently, instillations of a solution of duboisin sulphate were practised, and the conjuctival sacs were frequently irrigated with tepid, sterilized water.

For Eczema.—

R.—Acid salicylic. . . . . ʒj.
Zinci oxid. . . . . ʒiij.
Pulv. amyl. . . . . ʒiv.
Adipis lanæ hydrosi . . . ʒj.—M.
Ft. ung.
S.—Apply topically. *Practitioner.*

For Chronic Bronchitis.—

R.—Ammonii chloridi }
Ammonii bromidi } . . āā gr. xv.
Pulvis ipecacuanhæ . . . gr. iij.
Morphinæ hydrochloratis . . gr. j.
Mucilaginis acaciæ . . . q. s.—M.
Ft. pil. no. x. S.—One night and morning.
Med. Press and Circular.

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SATURDAY, JULY 7, 1894.

BERI-BERI.

ALTHOUGH the disease beri-beri is but rarely observed in this part of the world, a more than scientific interest is to be attached to it, inasmuch as sporadic cases are occasionally brought to our seaport towns from infected localities, and the possibility, under favorable circumstances, of extension is not to be ignored. A *résumé* of the more essential features of the affection may therefore be not entirely without utility, and a recent monograph[1] by one who has availed himself of the opportunity afforded by a long residence in Japan for a practical study of beri-beri, will be utilized as the basis of these remarks.

The etymology of the word beri-beri is obscure, although its source is believed to have reference to the impairment of gait, which is a noticeable feature in most, if not in all, cases. The first European description of the disease dates back to the middle of the seventeenth century, and was based upon observations made in the Malayan Archipelago, although descriptions of the disease, under the name of kakké, had been given in Chinese and Japanese writings of a much earlier date. The geographic distribution of the disease includes a large portion of the tropical and subtropical countries of the two hemispheres, although the main seat of the disease is formed by the islands of the Malayan Archipelago, and particularly Sumatra, where the disease prevails both endemically and epidemically. It is also encountered in India, China, Japan, Africa, and South America. Only sporadic cases have been observed upon the continent of Europe and in North America, although Cuba has at times been an active seat of the disease.

At different periods in the past beri-beri has been viewed as either a rheumatic affection or as a constitutional disturbance of nutrition, but the modern and generally accepted view is that it is an infectious disease, probably of miasmatic type, developing under conditions of high temperature and moisture, and presenting the symptomatology of a multiple neuritis. The exciting cause is supposed to be a microörganism, animal or vegetable, though as yet no specific one has been conclusively isolated. The predisposing influences are numerous. The most important is race, the dark races, both native and foreign, suffering more than the white. The disease is more common in males than in females, a fact that is probably to be explained by a difference in the surroundings and mode of life of the two sexes. The largest number of cases occur between the ages of sixteen and twenty-five, and the disease is most prevalent in the months of July and August. The disease notably attacks those of sedentary habits. Debility or depression from any cause, such as previous illness, pregnancy, lactation, or the like, constitutes a predisposing influence. Beri-beri also, in turn, predisposes to the occurrence of complications and the invasion of other disease. In places where the disease prevails the acclimated are less liable to attack than the non-acclimated.

Four types of the disease are described, in accordance with the grouping and intensity of the symptoms: (1) An incompletely developed or rudimentary form; (2) an atrophic form; (3) a dropsical or dropsical and atrophic form; and (4) an acute pernicious or cardiac form. The rudimentary form may set in insidiously, with or without prodromes, including general malaise, fatigue, depression, headache. Frequently catarrhal symptoms are present, soon followed by weakness in the lower extremities, with numbness and edema, and indications of constitutional disturbance. These symptoms may persist

[1] Die Beri-beri-Krankheit: Eine geographisch-medicinische Studie. Von Dr. B. Scheuber, Fürstl. Physicus und Sanitätsrath in Greiz; früherem Professor an der Medicinschule in Kioto (Japan). 8vo, pp. viii, 220. Jena: Gustav Fischer, 1894.

for days or weeks, even for months, convalescence and recovery ensuing gradually.

In the atrophic form the onset of the symptoms may be insidious or abrupt. These consist distinctively in loss of power and wasting of the affected muscles. Improvement takes place slowly, months often elapsing before motility is restored. The dropsical form is characterized by the occurrence of general and widely-spread anasarca, involving the serous cavities as well as the subcutaneous tissues. Recovery is gradual. The acute pernicious form attacks preferably young, robust persons, and is characterized by the occurrence of symptoms of acute cardiac insufficiency. These may set in suddenly in the course of an attack of milder type, although as a rule the course of the disease is from the outset more acute.

The most conspicuous and most constant symptom of beri-beri is the impairment of motion. This begins in the lower extremities, and is of ascending type and of variable degree. Sometimes one side of the body is more affected than the other. In some cases the diaphragm suffers, sometimes the cranial nerves, particularly the pneumogastric. The paralysis is, as a rule, flaccid; exceptionally it is spastic. The irritability of the affected muscles is diminished with both forms of electricity, faradic contractility of both muscle and nerve being lost more rapidly than galvanic irritability. Mechanical irritability of the muscles is also diminished. The paretic muscles waste. Next in importance to these motor manifestations are the sensory symptoms. Cutaneous anesthesia or hypesthesia is almost constantly present. It is of variable distribution, and is proportionate to the severity of the attack, or of the remaining symptoms. Paresthesiæ are common and varied, as hyperesthesia is uncommon. There is little pain, spontaneous or induced. The cutaneous reflexes are as a rule preserved, while the knee-jerks are often wanting. Cerebral symptoms are not pronounced. Circulatory disturbances form an important part of the clinical picture of beri-beri. Among the most common of these are palpitation of the heart, oppression and dyspnea, epigastric pulsation, precordial distress, acceleration of pulse, diminution of arterial tension, cardiac hypertrophy and dilatation, functional cardiac murmurs. The urine is, as a rule, diminished in amount, and in some cases contains albumin. There are, further, symptoms of varying intensity of gastric and pulmonary derangement. The lungs sometimes undergo a peculiar distention. The blood shows no distinctive alteration.

The usual termination of the disease is in recovery. In a proportion of cases this is not perfect; obstinate and incapacitating sequelæ sometimes persist. The most important of these is muscular weakness; others are defective sensibility and circulatory disturbances. The mortality varies with time and place, though always not inconsiderable. In acute cases, death usually results from heart-failure or from paralysis of the diaphragm. In chronic cases, and particularly when complicated with other diseases, death may take place from general exhaustion.

The essential lesions consist in a degenerative inflammation of the peripheral nerves, with a corresponding change in the muscles, and parenchymatous changes in the viscera. In some cases degeneration of the ganglion-cells of the anterior horns of the spinal cord has been observed. The spleen is moderately enlarged in acute cases. Various microörganisms have been found by different observers in the blood and organs of cases of beri-beri, but none has been conclusively demonstrated to possess specific properties.

The prognosis is uncertain, and must be based upon the circulatory condition. The prophylaxis is hygienic, and intimately related to disinfection, drainage, and water-supply. The treatment is climatic and symptomatic. Elevation is to be preferred, and a sea-voyage may be curative. Laxatives have always been looked upon as serviceable. In acute cases, salicylic acid and sodium salicylate have been strongly recommended. Digitalis is an indispensable remedy. In acute cases with cardiac insufficiency, venesection may be resorted to. In chronic cases, arsenic, iron, and quinin are indicated. In atrophic cases, subcutaneous injections of strychnin are useful, and the pareses may be materially improved by electricity.

EDITORIAL COMMENTS.

Hysterical Muscular Atrophy.—The forms in which hysteria may disport itself can in all truth be said to be legion. There is virtually no morbid condition which this peculiar disease of protean manifestation may not reproduce. That the disease is not merely a psychosis, a derangement of psychic coördination, an analysis of its symptomatology must make perfectly evident. The clinical syndrome to which it gives rise is referable not only to the cerebral but also to the spinal and the sympathetic nervous systems as well. In a recent interesting communication, Hirt (*Deutsche medicinische*

Wochenschrift, 1894, No. 21, p. 459) points out that muscular atrophy may not only be of muscular and spinal origin and appear as a manifestation of hemiplegia, posterior spinal sclerosis, diabetes, etc., but that it may also represent a phase of hysteria. The peculiarity of hysterical muscular atrophy is that it is usually limited to one-half of the body, although exceptionally it involves a circumscribed nervous area, such, for instance, as that supplied by the distribution of the sciatic or the radial. Motility diminishes in direct proportion with the atrophy of the muscle-bundles. Under these conditions sensibility varies in the individual case. In exceptional instances it is normal; more commonly it is altered, more particularly common sensibility and the thermal sense, and complete anesthesia may occur. In some cases the atrophic process involves the entire voluntary muscular system, in the absence of appreciable wasting visceral disease. The diagnosis is based upon the psychic attitude of the patient and the occurrence of hysterical or hystero-epileptic seizures. Hirt refers to three cases of general hysterical muscular atrophy and details one at length. This last occurred in a girl of thirteen years, who had suffered with others in the course of an epidemic of hysterical convulsions in a school, and from which recovery apparently resulted. Some time later the girl became ill, presenting general weakness, malaise, and sleeplessness; she became irritable and persisted in remaining in bed and refused nourishment. Soon, however, wasting became a prominent feature, although upon most careful examination no organic disease could be detected. Despite vigorous treatment the girl died, and upon post-mortem examination no lesion other than the muscular wasting could be found.

Life insurance Statistics.—The report of the Medical Examiner-in-chief of the Royal Arcanum for the year 1893 contains some interesting statistics that seem worthy of reproduction. During the year there were received 3455 applications, of which 992 were rejected. Thirteen hundred and five deaths occurred among a membership of 143,192, a ratio of 9.11 per thousand. The largest number of these were distributed as follows: New York, 273; Pennsylvania, 147; Massachusetts, 145; Illinois, 110; New Jersey, 99; Ohio, 78; Arkansas, 14; Minnesota, 8. Of States in which the membership exceeded 500 the rate per thousand was highest in Arkansas (23.1) and lowest in Minnesota (3.5); in New Jersey it was 10.1, in Illinois 10, in Massachusetts 9.7, in Pennsylvania 8.7, in New York 8.6, and in Ohio 8. The largest number of deaths resulted from affections of the brain and spine (212, 16.2 per cent.), the smallest classified number from carcinoma (53, 4.1 per cent.). Tuberculosis was responsible for 194 deaths (14.9 per cent.), diseases of the heart and arteries for 156 (11.9 per cent.), diseases of the lungs, excluding tuberculosis, for 154 (11.8 per cent.), diseases of the digestive organs for 133 (10.2 per cent.), diseases of the kidneys for 125 (9.6 per cent.), casualties for 84 (6.5 per cent.), suicides for 60 (4.6 per cent.). There were 113 deaths (8.6 per cent.) from zymotic diseases; of these, typhoid fever was by far the most frequent. The largest number of cases of tuberculosis occurred in New York (47), with 22 in Massachusetts, 20 in Illinois, 17 each in New Jersey and Ohio, 13 in Pennsylvania, and 10 in Maryland. In States having a membership of over 1000 the death-rate from tuberculosis was as follows: Massachusetts, 2.1 per cent.; Illinois, 1.8 per cent.; Ohio, 1.8 per cent.; New Jersey, 1.7 per cent.; Georgia, 1.6 per cent.; Tennessee, 1.5 per cent.; New York, 1.5 per cent.; Massachusetts, 1.5 per cent.; Michigan, 1.3 per cent.; Indiana, 1.3 per cent.; Virginia, 1.2 per cent.; Wisconsin, 1.1 per cent.; Missouri, 0.9 per cent.; Pennsylvania, 0.8 per cent.; North Carolina, 0.7 per cent.; Connecticut, 0.7 per cent.; Ontario, 0.3 per cent. Ten deaths resulted from appendicitis; six of the cases were subjected to some form of operation.

"Whatever Pays is Right."—The profession of medicine has been praised for, and professors of medicine have taken no little pride in, the fact that personal profit was not the sole end and supreme object of the practice of medicine. Recognizing that, like other men, they must live and, to live, must possess the means of livelihood, physicians have not affected to despise money, and have not hesitated to defend their claims to proper remuneration for services rendered. They have, however, subordinated the money-making or traders' spirit to the scientific or professional spirit, and have not been swayed to adopt a morally doubtful course, because it "paid" to do so. Nor have they thought that evil example excused or relieved from censure those who, knowing the example to be evil, followed it for purposes of gain. It appears, however, that in certain quarters there is entertained a confident belief that this is now to be changed. The report of an important committee of a representative association of physicians contains, as excuse for a course of conduct admitted to be morally censurable, the plea that others do the same thing; and for complete justification of this wrong-doing the statement that a considerable sum of money (elsewhere stated to be eight thousand dollars *per annum*) is gained thereby. For those who admit the force of such arguments, the demonstration is convincing. By the same logic, United States Senators are justified in speculating in stocks the price of which is influenced by their legislative action. "Others do it. It pays." The parallel is complete. While, however, those who have wire-pulled themselves into office in the United States Senate or elsewhere may be willing to acknowledge as their standard of morality, the motto: "Whatever pays is right," we are unwilling to believe that the physicians of America will indorse the action.

Abominable Landscape Advertisements.—Lord Rosebery, the Prime Minister of England, lately asked: "What is to become of our landscape if it is to be simply a sanitary or advertising appliance? Think of the feelings of the illustrious Turner if he returned to life to see the luggers and the coasting ships, which he made so glorious in his paintings, converted into a simple vehicle for the advertisement of a quack medicine."

If Lord Rosebery is offended in England, what would be the state of his feelings if he should travel in the United States? We know a gentleman who will not, if avoidable, make the trip between Philadelphia and New York in the daytime, because of the hideous and nauseating advertisements that glare at him from every barn and field. At Milwaukee last year the medical visitors who perchance visited the Park were astonished at the

filthy deviltry daubed on huge boards for the education of every girl, boy, or woman who might enter.

The worst of all this matter is the double encouragement of disease by first poisoning the minds of the hysterical and pathologically inquisitive, and then inducing more genuine disease by the effects of the vile concoctions. The advertisement encourages the imagination of disease, and then creates the reality by the "cure." Cannot the landscape-advertisement curse be stopped by law?

The Complications of Gonorrhea.—Although the gravity of the complications of specific urethritis has long been recognized, the mode of origin of those not arising by immediate continuity or contiguity has not been clear to the point of demonstration. Recent observations, however, tend to show that these secondary manifestations represent a result of the transference of the specific etiologic factor of the disease—the gonococcus of Neisser. A brief note in THE NEWS of August 19, 1893, p. 217, details the finding by Leyden of gonococci at the seat of an endocarditis occurring in the course of an attack of gonorrhea complicated also by synovitis. Stronger evidence of the same nature is furnished by BORDONI-UFFREDUZZI (*Deutsche medicinische Wochenschrift*, 1894, No. 22, p. 484), who, in a paper read before the Eleventh International Medical Congress, recently held at Rome, related a case of gonorrhea complicated by polyarthritis, in which in the pus removed from an affected joint he was able to demonstrate the presence of gonococci, and with cultures from the second generation of which he was successful in inducing gonorrhea in a subject that volunteered to submit to the experiment. He also refers to a case of gonorrhea complicated by bilateral pleuritis, polyarthritis, pericarditis, and endocarditis reported by another observer, in which gonococci exclusively were found in fluid removed from the pleural cavity.

REVIEWS.

A TEXT-BOOK OF THE THEORY AND PRACTICE OF MEDICINE BY AMERICAN TEACHERS. Edited by WILLIAM PEPPER, M.D., LL.D., Provost and Professor of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania. In two volumes. Illustrated. Vol. II. 8vo, pp. 1046. Philadelphia: W. B. Saunders, 1894.

THE best and most important contribution to Vol. II of Pepper's *Text-book* [which must not be confounded with the more elaborate *System of Medicine*, edited by the same teacher and published by Lea Brothers & Co.] is that of Prof. William H. Welch upon the "Biology of Bacteria, Infection and Immunity." Clear, concise, comprehensive, and accurate, it condenses and elucidates for the practising physician the accepted results of modern research. A thorough grasp of the subject is essential to success in diagnosis and treatment, and hence we warmly commend these chapters to careful and repeated study. Diathetic Diseases, including gout, diabetes, rheumatism, obesity, biliary lithiasis, etc., are well treated by Prof. Henry M. Lyman; Diseases of the Blood, of the Supra-renal Capsules, and of the Ductless Glands, by Prof. Osler, concerning whose work comment is usually superfluous and adverse criticism impossible. Diseases of the Heart and Vessels and Diseases of the Mediastinum have been written of by the Editor. We have been especially pleased with the chapters upon valvular diseases. Prof. J. C. Wilson writes clearly and succinctly concerning Diseases of the Nose, Larynx, Bronchi, and Pleura. In the sections on the upper air-passages much has been sacrificed to brevity. Prof. Delafield treats authoritatively of Diseases of the Lungs and Diseases of the Kidneys. In both articles the pathologic and clinical sections are full and thorough, but those on therapeutics are not satisfactory. Practical Urinalysis is well set forth by Prof J. W. Holland. He fails to give his opinion, however, concerning the reliability of some of the more delicate tests for albumin. The chapters on Diseases of the Mouth, Tongue, Pharynx, Tonsils, Esophagus, Stomach, and Intestines are by Prof. Pepper. They are full and on the whole reliable, though we can hardly agree with the opinion that herpetic pharyngitis is a rare affection. Prof. Reginald H. Fitz's contributions on Diseases of the Peritoneum, of the Liver, and of the Pancreas are admirable in every respect. Probably no other text-book contains an article on the pancreas at all comparable with this.

As a whole we commend the book. Its peculiar excellences are in such articles as Welch's, Delafield's, and Fitz's, but every author has done good work.

THE DISEASES OF CHILDREN (MEDICAL). By H. BRYAN DONKIN, M.D., Oxon., F.R.C.P., Physician to the Westminster Hospital and to the East London Hospital for Children, at Shadwell; Joint Lecturer on Medicine and Clinical Medicine at the Westminster Hospital Medical School. New York: William Wood & Co., 1893.

DR. DONKIN has succeeded in furnishing us with a book of 424 pages, which is interesting, instructive, and somewhat novel in its device. It is hardly suited to students, as, indeed, the preface indicates, as it does not attempt to be complete. For instance, mental diseases are not discussed at all, and some other subjects are also omitted. The author, too, has made no effort to give a full description of each disease considered, but rather to call attention particularly to the points pertaining to children; while he refers more briefly to the symptoms as seen at any age, assuming that these are already known to the reader. Considering this fact, the introductory observations on the method of examining children, and on the special characteristics of diseases in them might with advantage have been fuller. Still, remarks on this topic are found in abundance scattered through the book under the different headings.

Space does not permit an analysis of the various sections of the volume. The amount of attention given to the different diseases seems, on the whole, very fairly distributed, although occasionally one or another of them is cut rather short.

The various subjects are not formally classified under etiology, pathology, and so forth, as in an ordinary text-book, but the diseases are considered somewhat discursively in a pleasant, rather conversational style, with emphasis laid here and there on matters especially important in their relation to childhood, and with a reple-

tion of observations drawn from the writer's wide and long experience. This method of writing makes the book very interesting reading. In fact, the more one reads it the better is one pleased.

We can very heartily recommend the volume to those wishing to add to their libraries a valuable work of reference for frequent consultation. It is not, as we have said, so serviceable to those who wish to limit themselves to one or two works on pediatrics.

CLINICAL LECTURES ON PEDIATRICS. Delivered in the Vanderbilt Clinic during the Session of 1892–93. By A. JACOBI, M.D., Clinical Professor of the Diseases of Children in the College of Physicians and Surgeons of New York. Pp. 195. Stenographic Reports, Bailey & Fairchild. Reprinted from the *Archives of Pediatrics*.

THIS clinical volume represents a fair example of the practical instruction given in the children's clinic of the College of Physicians and Surgeons, as the author remarks, both with the merits and demerits of extemporaneous discourses. Being stenographic reports exclusively, there is a natural charm about them that is not present even in the best systematic writing of the best authors, and while reading them one does not require a vivid imagination to feel the presence of the lecturer, the patients, and the students. There is much in the work that is instructive, and there is authority, learning, and extended experience in every paragraph. The author is a clever diagnostician, an excellent clinician; but when he invades the domain of the strictly surgical affections, the result is sadly disappointing. Instead of condemning all the measures he cannot himself control, as aspirations and injections, the physician should courteously refer all strictly surgical affections to the surgical staff. The time has come for specialism in the surgical diseases of children, and such conditions as spondylitis, congenital dislocation of the hip, syphilitic periostitis, spina bifida, etc., should be dismissed by the physician when a diagnosis has been made. Surgical science has made such swift strides during the last twenty years that it is impossible for the general physician, no matter how skilful, to keep up with the van.

SOCIETY PROCEEDINGS.

AMERICAN GYNECOLOGICAL SOCIETY.

Nineteenth Annual Meeting, held at Washington, D. C., May 29, 30, and 31, 1894.

FIRST DAY—MAY 29TH.

AN Address of Welcome was delivered by DR. FRY, Secretary *pro tem*. Then followed a discussion on "Extirpation of the Uterus in Disease of the Adnexa," which was opened in the affirmative by DR. J. M. BALDY, of Philadelphia. He maintained that the uterus had but one function, to contain and develop the embryo. When the ovaries are removed this function of necessity is destroyed, and the organ becomes a useless one. It has been proved that all patients are not cured after an operation requiring double oöphorectomy. Many complain of pain, metrorrhagia, and muco-purulent leukorrhea. The question as to whether or not patients are cured after hysterectomy when double oöphorectomy has failed, can only be answered by the results of experience. Personally, Dr. Baldy has cured patients by a secondary hysterectomy. He felt certain that the operation of hysterectomy does not increase the mortality above that of double oöphorectomy. On the contrary, he has found that not only has hysterectomy in his hands lessened the mortality very markedly, but it has also rendered the convalescence infinitely smoother, easier, and more satisfactory. Not only is the uterus after double oöphorectomy a useless organ, but he believes that its retention in the body is of disadvantage, or even danger to the patient. The fact that the pelvic floor is more likely to sink to a lower level after the removal of the appendages than after hysterectomy, is a strong argument in favor of complete extirpation. He said that 20 per cent. of all pustubes are of tuberculous origin, and the danger of the disease reappearing in the retained uterus should be a strong reason for removing all of the internal genitalia. Hysterectomy is the preferable operation in a certain percentage of cases. Uterus, tubes, and ovaries should not be removed in all cases of pelvic inflammatory disease; but when, after abdominal section, the womb is found enlarged and diseased, especially if it has not been surrounded by extensive adhesions, the destruction of which leaves large areas of denuded peritoneum, hysterectomy should be the operation of choice. Even in cases in which during an operation the uterus has been largely denuded of its peritoneal covering, hysterectomy should be performed. When there is good reason for believing that the uterus will at some time in the future become the seat of disease, the organ should be removed, or when the danger of hemorrhage may be avoided, hysterectomy should be performed. The abdominal method of operation is the one of choice, because all of the parts are exposed to the eye as well as to the touch, and hence greater accuracy and security can be obtained; and intestinal injuries may be readily discovered and corrected, and complete removal of the adnexa may be insured. Drainage may be avoided by absolute closure of denuded surfaces.

DR. FLORIAN KRUG, of New York, spoke of the results following the Hegar-Battey operation, which were at one time considered gratifying. Its limitations are, however, now recognized. While the appendages were removed, the essential and primary cause of the trouble was retained. The continuance of distressing symptoms is to be attributed to the primary lesion in the diseased uterus, to the effects of premature and artificial menopause upon the sympathetic nervous system, to the irregular and delayed involution of the uterus, and to the adhesions formed between the intestines and raw surfaces in the pelvis. Then there must be added the possibilities of repeated reinfection of the uterus and of ventral hernia, in consequence of different methods of drainage. Histologically, the tubes are but part of the uterus, and their removal is a partial removal of the uterus. Why not go a step further and remove the whole of the diseased organ? The primary situation of the disease is in the uterine cavity, and the tubes are involved by direct continuity of tissue. He asserted that in the hands of those familiar with the technique of hysterectomy the mortality is less than that of celiotomy. He objected to the vaginal method of operation.

DR. H. T. HANKS, of New York, said that whether the uterus should be left or removed in any individual case of diseased adnexa can only be determined when the character of the disease, as well as the condition of the uterus, is considered. In a number of cases all of the troublesome symptoms persist after thorough hysterectomy. Fewer after-symptoms are observed to follow hysterectomy for fibroid uteri than when only the tubes and ovaries are removed. The drainage through the vagina after hysterectomy is the ideal drainage. There are three conditions in which, upon theoretic grounds and from practical experience, he would advocate the entire extirpation of the uterus, in addition to the appendages: when there is an old or recent pyosalpinx, with much exudation, and with a purulent endometritis, or a chronic catarrhal endometritis; when there is a puerperal salpingitis and ovaritis, and probably a puerperal endometritis; when, in removing the diseased tubes and ovaries many adhesions are broken up, and when the uterus is retroflexed or retroverted and held firmly down by exudates—in other words a perimetritis in which the diseased tubes and ovaries, together with a retroverted or retroflexed uterus, are all displaced, diseased, and bound down in Douglas' cul-de-sac by plastic exudation.

DR. BACHE EMMET, of New York, contended that the position that the primary disease may be more thoroughly eradicated by removing the uterus cannot be consistently maintained. Either there is an occlusion of the tube at that point, in which case there can be no infection, as there is no morbid material present, or it may be inert, or, if the tube be opened, it could be drained by the uterine cavity and the patient cured without resorting to ablation. It is maintained that the uterus may still be the seat of symptoms in the absence of actual disease. In such a case there would be reason to suspect an error in diagnosis or that the operation had not been perfect. The difficulty and danger of hysterectomy should always be borne in mind.

DR. W. GILL WYLIE, of New York, would not agree that the uterus should always be removed with the tubes and ovaries. It should be removed, however, in case of malignant disease, in case of fibromata, in case of other intractable disease, and, as a rule, when the patient is over thirty-five years of age. His experience has shown that when the uterus is removed with the tubes and ovaries there is less of the reflex disturbance common in women at the menopause, who have or have had disease of the uterus, than there is in similar cases when the uterus is not removed with the tubes and ovaries. He does not think, however, that the uterus should be removed regardless of its condition.

DR. WILLIAM H. WATHEN, of Louisville, expressed opposition to hysterectomy for diseased appendages in nearly every case. Only in case of malignant disease of the uterus or of a myoma of that organ should the operation be performed. The majority of the women recover permanently after removal of the ovaries.

DR. EDEBOHLS, of New York, said that there are two reasons for removing the uterus with the tubes and ovaries: when it is desired to obtain absolutely good drainage down to the vagina, and when the organ is so diseased that curettage and ventro-fixation would be insufficient to restore it to health.

DR. CUSHING, of Boston, expressed a preference for the glass drainage-tube from above, for the reason that the vaginal drainage from the bottom of the vagina does not reach the lowest portion of the pelvic cavity.

DR. JANVRIN, of New York, maintained that with the improved methods for ablation of the uterus very little shock is added, and, as a rule, the prolongation of the operation is limited to a very few minutes. He would not remove the uterus, however, unless there was some actually diseased condition of the organ visible to the eye.

DR. CHARLES P. NOBLE, of Philadelphia, said that he saw no reason for taking out the uterus unless some definite purpose was to be accomplished. Of course it should be removed in all cases of tuberculosis, or in cases of fibroid and carcinoma, but in all the acute inflammatory conditions of the uterus, unless there is an abscess with destruction of its walls, the organ promptly gets well after the tubes and ovaries are removed. In chronic conditions he would perform hysterectomy if the woman could stand the operation.

DR. PRYOR, of New York, said that removal of the uterus precludes the possibility of further disease of that organ, of displacement and irregular atrophy; the menopause is short; there is nothing left to keep up the neuritis; atrophy of the genitalia is not hastened or exaggerated, and there is entire relief from subjective symptoms. He tries to remove every filament of nerve-tissue about the cervix, and to make the extirpation as complete as possible; he is opposed to the retention of even a portion of the cervix. He believes that as much comfort can be afforded cases of suppurative inflammatory pelvic disease by palliative measures applied from the vagina as can be obtained by removal of the adnexa only.

DR. A. P. DUDLEY recommended hysterectomy in puerperal infection, when the operation must be done hastily to prevent general peritonitis; and in extensive pyosalpinx, and diseases in which the uterus has been adherent so long in the pelvis that to break up the adhesions would destroy the tissue. He does not think it necessary to remove the uterus for catarrhal endometritis.

DR. BALDY, in conclusion, said that he never uses drainage in these cases. The operation of hysterectomy is not to be performed in catarrhal salpingitis and endometritis, but only when there is suppurating disease.

DR. EDWARD K. REYNOLDS read a paper on the "Management of Face-presentations." He said that face-presentations are frequently caused by some mechanical complication of labor, such as a flat pelvis, or a small fibroid in the lower uterine segment, or it may be complicated by prolapsed funis, hemorrhage or eclampsia. In the first stage, with the membranes unruptured, flexion with presentation of the occiput should be secured. The membranes must be preserved, and hence vaginal examinations should be avoided. The patient should be laid on the side to which the fetal abdomen is directed, and if flexion does not take place, the woman should be placed in the knee-chest position. This failing, Schatz's method should be tried. When the membranes rupture early, version may be performed, the back being brought down, or the head may be flexed by manual means. The objection to version is the great fetal mortality, probably as a result of compression of

or traction on the cord. Hence version should only be performed in case of early rupture of the membranes. In the second stage, the treatment depends upon the position of the child. In mento-anterior positions Nature may be left to itself. The fetal heart must be watched, however, on account of the danger from compression of the vessels of the neck. In case operative procedures are required, manual flexion of the head should be preferred. The application of forceps to the face, high up, should be reserved as a last resource, because of the difficulty of its performance. In mento-posterior positions flexion by the hand should be performed. The opinion was expressed that in these neglected cases the vitality of the child will almost invariably be seriously compromised, and the mortality of the abdominal operation is so high that craniotomy should be resorted to.

DR. CHARLES JEWETT said that he regarded the mechanism of face-birth as abnormal and as frequently constituting a serious complication of labor. He thought that presentation by the face is more frequently associated with other complicating conditions, such as small pelvis, large child, prolapse of small parts, than are vertex-births. In the matter of treatment, he makes two general classes of cases: 1. Those in which the head is movable at the brim, or can be made so by pushing it up. 2. Those in which the head is permanently engaged in the pelvis. In the first class, when the chin is anterior, interference is not as a rule required. When the chin is posterior, if all other conditions are favorable, spontaneous birth is generally possible, although the child is more exposed to dangerous pressure than in vertex cases. He would, therefore, in such cases prefer to bring down the vertex under anesthesia. In the second class of cases, spontaneous evolution takes place with but few exceptions. Rotation is to be favored by placing the patient on the side to which the chin points, in conjunction with upward pressure on the forehead or downward traction on the chin during the pains. If the head is immovably fixed in the pelvis, symphysiotomy may be performed, unless the child is weak and the mother's condition is unfavorable. Then craniotomy must be done.

DR. CHARLES P. NOBLE, of Philadelphia, suggested that in neglected anterior positions symphysiotomy might be performed. In case of posterior position he would also prefer symphysiotomy if the child were living.

DR. EDWARD P. DAVIS, of Philadelphia, urged the importance of early diagnosis of this complication. The treatment best adapted to secure spontaneous labor in face-presentation consists in retaining the membranes unbroken until the time of spontaneous rupture, in sustaining the patient's strength by suitable feeding, stimulation, and anodynes, and in placing the patient in a position to favor anterior rotation of the chin. Symphysiotomy is of too recent date to occupy an established place in the treatment of neglected cases. Still he thought it has its place.

DR. MURRAY thought that face-presentations usually resulted from a disproportion between the size of the head and the diameter of the pelvis. He thought that symphysiotomy would tend to reduce the mortality and lead to a great many more spontaneous deliveries.

DR. FRY suggested the value of Trendelenburg's position in performing flexion of the head. He has seen it work very nicely, and believes that it aids in the necessary manipulation.

DR. WILLIAM T. LUSK, of New York, said that it is not easy to flex the head or to rotate the chin anteriorly. If the chin is directed transversely the application of the forceps and the rotation or flexion of the head are very difficult. Symphysiotomy does away with all of these difficulties.

DR. MATTHEW D. MANN, of Buffalo, thought that nearly all of the cases of face-presentation could be treated best by a new position of the head. He thought that by the use of anesthetics we can accomplish all that is done by posture in the treatment of these cases.

In closing, DR. REYNOLDS said that he could not believe that symphysiotomy could ever be indicated in uncomplicated face-labor, unless in the treatment of persistently posterior positions within the pelvis. He would rather sacrifice a few of the children, in whom mortality is at best low, than to perform symphysiotomy.

DR. WILLIAM R. PRYOR, of New York, read a paper on "The Abuse of Trachelorrhaphy." He stated that he regarded laceration as merely a mutilation of the cervix, and that it was impossible for such a mutilation to produce the train of symptoms usually ascribed to it. The cervix is only a sphincter muscle, and it is improper to lay the charge of sterility at its door. He regarded subinvolution as due to the prolonged labor and not as resulting from division of the cervical tissue. While carcinoma of the cervix is becoming quite common, he believed it to be due to the existence of embryonic tissue in the uterus, and not to the tear in the cervix. The only cases that demand trachelorrhaphy are those attended with severe hemorrhage, or those in which the tear extends up to the vaginal junction. In those cases in which the tear is extensive and marked hypertrophy existed, amputation is the operation required. He was not in favor of suturing the cervix, for the reason that this rendered the canal too small for future labors.

DR. HENRY T. BYFORD, of Chicago, agreed in believing that trachelorrhaphy is too frequently performed. In cases of deformity of the cervix Schroeder's operation is the best, for in such cases simple trachelorrhaphy would not meet the requirements. In cases of deep tear, with hemorrhage, sutures should be immediately introduced. Subsequent sepsis may thus be prevented.

DR. J. M. BALDY, of Philadelphia, thought that the pathologic conditions found subsequently to lacerations result from the leukorrheal discharge and not from the tear itself. All lacerations associated with eversion and erosion should be repaired.

DR. CHARLES P. NOBLE, of Philadelphia, did not regard lacerations of the cervix as normal, nor does laceration occur in every parturition. He stated that, according to recent statistics, carcinoma is as common in the negress as in the white woman. Carcinoma occurs usually in women that have given birth to many children. All severe cases of laceration require operation, and in some cases Schroeder's operation is the preferable one.

DR. ENGELMANN, of St. Louis, thought that the extent of injury and the pathologic condition found should be the guide as to the operation required. He did not believe that laceration occurs in every labor; when it does occur,

if the tear extends beyond the crown of the cervix, operation is indicated.

Dr. Gordon said that the operation of trachelorrhaphy has been performed too frequently and without proper forethought for the after-results. He believed that laceration occurs whenever the cervix was originally too small. Now if such a torn cervix be sutured, the original abnormal condition will be restored. In cases associated with hypertrophy and hyperplasia, curetment and the application of pure carbolic acid will be productive of much good.

In closing, Dr. Pryor said that there should be no place in gynecology for the operation of trachelorrhaphy. Other methods would be followed by much better permanent results.

Dr. Edward P. Davis, of Philadelphia, read a paper entitled "Fatal Nausea and Vomiting of Pregnancy," which will be found on p. 597 of The Medical News, of June 2d.

Dr. Edward R. Reynolds stated that he is in the habit of performing abortion at once in such cases, for the reason that there usually exists some structural alterations that require such a radical course of treatment. If the vomiting were allowed to go on, anemia would supervene, and the danger lay in that condition. If the patient be allowed to go on until the absorptive system had lost its power of supplying the body, even abortion would fail to save the patient's life; this in some cases seemed to hasten the fatal issue. If the expectant plan of treatment be adopted great judgment must be exercised.

Dr. W. Gill Wylie, of New York, stated that in his hands the use of steel dilators in this condition had been followed by considerable success. Dilatation and relief of the congestion was followed by good results. There usually existed some pathologic condition to account for the reflex symptoms present. Dilatation, to be effective, should be carried up to the internal os.

Dr. Matthew D. Mann, of Buffalo, spoke of the great difficulty experienced in ascertaining the cause of the condition in any given case. He reported the case of a woman married seven weeks, six of which had been spent in vomiting. After abortion had been induced a fibroid was discovered, which was presumably the original cause of the pernicious vomiting. Dr. Mann advocated the immediate induction of abortion in urgent cases.

Dr. Charles Jewett stated that he had seen many cases of this condition, but had failed in any to discover a pathologic state that could account for the symptoms. He admitted that some histologic changes might have existed. He claimed that great benefit might be derived from dilatation of the cervix, which is both a sure and a safe procedure. He protested against allowing patients to go too far before active measures are instituted.

Dr. A. Palmer Dudley said that he had treated five cases of very obstinate vomiting of pregnancy. He thought that there could be no doubt that the condition is a neurosis, and that the cause lies in some local condition of the generative organs. He was in the habit in such cases of packing the vagina and treating whatever pathologic condition he found to be present. He had found painting of the cervix with cocain to have been beneficial. He also administered cocain internally as well as camphor monobromate.

In closing the discussion Dr. Davis insisted upon the importance of retro-sternal pain and coffee-ground vomit as danger-signals in this condition. Whenever they appeared they called for prompt surgical interference.

Dr. E. C. Dudley, of Chicago, presented a paper on "Myomectomy as a Substitute for Hysterectomy." He first gave a history and a description of the various operations advocated for the removal of neoplasms in and around the uterus, and dwelt upon their relative merits. He stated that his objection to the operation of hysterectomy is that it removed the generative organs from the woman. To prevent this mutilation he has devised an operation for the removal of myomata from the uterus, at the same time preserving this important organ. He described in detail his operation and reported the histories of twenty-five cases in which he had operated for the removal of tumors of various sizes and with varying complications, the whole being accomplished without a single death. In some of the cases the appendages also were removed because of disease; in such cases, however, he would suggest removal of the entire uterus. He believed that in many cases in which the uterus is the seat of a myoma the tubes and ovaries are in a normal condition, and in such cases removal of the tumor is all that was indicated.

Second Day—May 30th.

The Presidential Address, on "The Proper Position of Recent Surgical Methods in the Treatment of Uterine Fibroids," was delivered by Dr. William T. Lusk, of New York. After an historic review of the surgical procedures proposed for the removal of uterine fibroids, he declared his belief in postponing hysterectomy or even myomectomy until every other method of treatment had been given a fair trial. He gave as his reason for such a position that many myomata remain stationary in their growth for years or even disappear spontaneously after pregnancy and curetment. He prefers Apostoli's method for small fibroids. He claimed that great improvement frequently follows palliative measures, while much unnecessary suffering and harm are entailed by the so-called radical treatment. He stated that whenever the uterine tissues are over-nourished the myomatous growths increase rapidly in size, and he suggested the treatment and correction of this hypernutrition as the main indication under these circumstances. He thought the first duty of the gynecologist should be to prevent the loss of the reproductive organs whenever possible. He advocated, when possible, the dilatation of the cervix and removal of the growth through that channel. He thought that the only indications for abdominal hysterectomy is the presence of many adhesions or of multiple tumors or other complications. Taking into consideration the published statistics, he was inclined to believe that vaginal hysterectomy should be preferred to abdominal hysterectomy. He grouped the following disadvantages of the suprapubic method: the disfigurement produced by the cicatrix, the great liability to hernia ultimately, adhesions of the omentum, and the immediate dangers consequent upon exposure of the intestines to the air and the shock. He thought that all tumors larger than a child's head should be removed from above. He did not favor castration for the

relief of fibroid tumors, for the reason that though at times successful, very often the patients would ultimately return suffering as severely as before the operation. In all cases of advanced growths extirpation of the involved organs, either complete or partial, would be the best plan of procedure. Pedunculated growths may be removed by simple ligation; large cystic and multiple growths by the supra-vaginal route, and then, if necessary, hysterectomy may be performed. In the treatment of the stump it seemed to him that the retro-peritoneal method was the one of election.

Dr. Polk, of New York, thought that the tendency is toward myomectomy rather than hysterectomy. He considered the retention of the uterus as of paramount importance whenever possible, and was strongly in favor of myomectomy. He thought it quite as feasible and safe to remove the growth through the peritoneum as through the vagina. He did not think that an accompanying pyosalpinx indicates an inability on the part of Nature to carry on ovulation, and that therefore castration, hysterectomy, or complete extirpation should be performed.

Dr. J. M. Baldy, of Philadelphia, stated that he was in favor of completely removing all the generative organs, and that no uterine tissue should be left *in situ* for fear of forming a nidus for the development of tuberculosis. He did not favor myomectomy, for in that operation complete removal of the diseased tissue, especially *per vaginam*, would be impossible. The vaginal operation also precluded all knowledge as to the condition of the appendages. By the abdominal operation a thorough visual examination of the parts could be made and proper treatment instituted. He contended that myomectomy from above had been abandoned because of the danger from hemorrhage from the divided uterine tissues, which would shrink notwithstanding the application of ligatures. Hysterectomy does away with all such dangers.

While it is true that ligation of the uterine artery might cause shrinkage of the tumor, a collateral circulation might be set up, and in this way the growth receive sufficient nourishment for it to increase in size.

Dr. Cushing, of Boston, said that he could not see why myomectomy should be preferred to hysterectomy. A myomatous uterus was of no benefit to the patient. Whenever there are associated pain and hemorrhage there is always involvement of the tubes and ovaries. He did not favor the vaginal operation, because the diseased tissue could not be removed *in toto*. Only in cases of small tumor should vaginal hysterectomy be performed.

Dr. Gordon advocated conservatism as far as practicable, but would operate whenever operation was necessary. He did not favor vaginal hysterectomy at all, and could not understand why diseased structures should be retained.

Dr. W. Gill Wylie, of New York, said that Dr. Lusk's suggestions were feasible for uncomplicated fibroids only. Generally, however, the conditions are so complicated that hysterectomy is preferable. He is in the habit of removing the whole uterus in cases of unmarried women who do not expect to marry. In young married women he resorts to curetment and palliative measures, such as myomectomy with retention of the tubes and ovaries. In women over thirty-five or forty he prefers hysterectomy. He believed that women suffering from fibroid tumors are more likely to develop carcinoma than other women.

Dr. Henry T. Byford, of Chicago, stated that it had been his intention to read a paper on the subject of the "Results of Vaginal Fixation of the Stump in Abdominal Hysterectomy," but that he would instead confine himself to a brief description of his method of operating and to a discussion of Dr. Lusk's paper. He stated that he agreed almost entirely with Dr. Lusk, and that he had no patience with those operators who advocated complete removal of the uterus in all cases of fibroid tumor. He stated that under palliative treatment he has been enabled to maintain many patients in a very comfortable condition for many years, even ten or fifteen. His treatment consisted in packing, curetment, and so forth, without radical operation. He has never seen any of these cases develop carcinoma. He endeavors to convert the tumors into polypoid growths by the administration of ergot internally, and traction on the growth; then he dilates the cervix and enucleates the tumor. Whenever operation has to be performed, he thought the pedicle should be treated extra-peritoneally above, or else the cervix should be removed, and the stump turned into the vagina and there secured. Drainage was advised.

Dr. Engelmann expressed regret at the manifest feeling against vaginal hysterectomy. This method, he thought, was preferable to the abdominal method, because of the absence of shock and of exposure to the risks of the supra-vaginal method. The danger of vaginal hysterectomy, he admitted, was the difficulty of controlling hemorrhage.

Dr. A. P. Dudley thought that Dr. Lusk's paper tended in the right direction. He thought that myomectomy had come to stay, and said that either method, vaginal or suprapubic, could be employed. In multipara, when the cervix is greatly diseased and the woman is past the meridian, he advocated complete removal as giving the best results.

Dr. E. C. Dudley, of Chicago, thought that the condition found in any given case should be the guide for operation. Hysterectomy is indicated at times, and at other times myomectomy. He thought the dangers of myomectomy very pronounced, and that vaginal hysterectomy offered good results in the great majority of the cases.

Dr. William H. Wathen, of Louisville, preferred myomectomy whenever practicable, so as to save to the woman her childbearing organ.

In closing, Dr. Lusk said he hoped that when the subject should be brought up again the statistical era would have been passed, and the exact position of the two operations have been determined.

Dr. Charles M. Green, of Boston, read a paper on "Rupture of the Uterus; Palliative *versus* Surgical Treatment." He stated that the treatment should be guided by the extent of the tear and the state of the patient. By "palliative treatment" was meant the sustaining of the patient by nourishment and stimulation, the use of antiseptics, and the control of hemorrhage by tampons. Celiotomy does not offer the good results that were hoped for. He reported several cases

in which recovery had taken place after rupture under palliative treatment. It is better to pursue this course than to expose the patient, already in a dangerous condition, to the shock of an abdominal section and the effort to arrest hemorrhage by suturing the uterus. The tissues are usually so irregularly lacerated that perfect apposition is impossible, and sutures would not hold in the friable structures. The palliative treatment he suggested was the use of compressive bandages, cold irrigation, tamponment of the rent with wicking and gauze, and drainage. Celiotomy should never be performed unless the issue seemed to be fatal or the child had escaped into the abdominal cavity and could not be extracted through the natural passages. Then the abdomen should be opened, the child removed, and the uterus sutured. After extracting the child uterine massage, ice-compression, and bimanual pressure should be employed. A tampon, properly employed, would control the hemorrhage. Irrigation through the rent into the abdominal cavity is not indicated unless the amniotic fluid has escaped into the peritoneal cavity. A better plan would be the injection into the cavity of a hot physiologic salt-solution. This would be absorbed and the volume of the blood increased. The peritoneum is very tolerant of aseptic blood, and there is no need of removing it at once. He urged a trial of the palliative method whenever severe hemorrhage does not indicate celiotomy.

Dr. Malcolm McLean believed that palliative treatment is proper in almost all cases. He did not believe in performing version save in those cases in which the child is above the pelvis; then the child should be brought down by version and at the same time the condition of the rent be examined. If the intestines were protruding or the placenta and contents of the bag of waters had escaped into the abdominal cavity, abdominal section should be performed. It is a great mistake to think that rupture of the uterus always indicates celiotomy. Whenever there is recession of the presenting part the operator should promptly draw down the child to prevent its complete escape into the abdominal cavity and the formation of a large hematoma, which would greatly hinder the successful performance of celiotomy should this become necessary.

Dr. William T. Lusk, of New York, thought that in cases of incomplete rupture situated in the posterior wall of the uterus palliative measures are indicated. In cases of tears situated anteriorly a fatal issue generally results. In cases of complete tear he would prefer to bring together the peritoneum and close the wound, so as to give the woman a better chance. The uterus itself should never be sutured. He is not in favor of performing Porro's operation in this class of cases. He advised complete removal of the uterus when the tear is great and the tissue considerably infiltrated.

Dr. Edward R. Reynolds, of Boston, thought that the treatment should vary according to the direction of the rupture. Those occurring elsewhere than in the posterior uterine wall, low down, required, in his estimation, complete removal of the uterus.

Dr. E. P. Davis, of Philadelphia, called attention to the pathology of these cases. He said that rupture of the uterus occurs more frequently in multiparous women who had previously suffered from some septic condition of the uterus, and thus it is impossible to hope for good results unless the uterus is completely removed.

Dr. Polk, of New York, considered these cases as grave in every instance. The most important thing to do was to empty the uterus and see that nothing was left behind. It would be hard to do this through the vagina. He had frequently irrigated through the vagina, but when he had been compelled afterward to open from above he had found that the water had failed to cleanse the abdominal cavity. He thought it was better to deliver by the natural passages, if possible, but to make a small opening above and cleanse in that way. If the uterus is much mutilated he favors complete removal.

Dr. Murray believed in treating the case according as the tear is complete or incomplete. He has seen four cases, two of which were fatal. If the rupture has taken place into the peritoneum it is better to open the abdomen and drain.

Dr. Malcolm McLean insisted that if the fetal membranes are intact, even if the rupture has been into the peritoneum, they are protective, preventing the introduction of infectious material, and under these circumstances the case should be treated differently. The simple oozing of aseptic blood into the peritoneal cavity can do no harm.

Dr. W. Gill Wylie, of New York, read a paper on "The Influence of Laceration of the Perineum on the Uterus, and the Operation for its Repair." He had no doubt that there is much yet to learn as to the results of laceration of the perineum, and the best methods of repair. For some time past he has been pursuing extensive studies in this direction, and believed that he had now arrived at the best method of operating upon an old laceration, especially when a rectocele is present. The general supposition is that in all ruptures of the perineum into the rectum there must necessarily follow a displacement of the uterus. This, however, is a mistake. If the rupture take place in the median line, even though it extend through the sphincter muscle of the bowel, there is no subsequent displacement of the uteri. If, however, the levator ani muscle is separated on both sides, then the continual straining at stool will eventually bring down the uterus. He was of the opinion that the anatomic facts in regard to the various axes, abdominal, pelvic, rectal, and anal, are not properly understood. If they were it would be plain to all why displacements of the uterus occur in certain forms of lacerations and not in others. The function of the perineum is not to keep the uterus in position, but to sustain the relation of the rectum and anus. When the perineum is destroyed, the continual forcing downward of the contents of the bowel, the normal resistance being removed, results in the formation of the rectocele. To restore the normal condition it becomes necessary to reunite the ends of the severed muscles and to dissipate the sulci on either side over the rectocele, thus strengthening the wall and thereby preventing the pouching. The straining at stool is the cause of the retroversion and prolapse. The uterus first becomes wedged in back of the utero-sacral ligaments, and not being able to free itself, further straining causes further extrusion of the organ. For the relief of this condition Dr. Wylie performs a modification of Tait's flap-splitting operation. This consists in a narrowing of the posterior vaginal

wall, and a picking up of certain tissues. The levator ani and the fascia in the depressed sulci on either side must be denuded and drawn up. The denudation must be deep enough to expose the dense white tissue. The structures must then be firmly drawn up with silver-wire sutures, the last three or four being entirely within the vagina. The sutures are left *in situ* for two or three weeks.

DR. CHARLES P. NOBLE, of Philadelphia, has found that when tears extend into the rectum they are invariably in the median line, and this probably is the reason why the uterus does not prolapse. He is always able in operating to find the fibers of the torn levator ani muscle, and he did not think that the support of the pelvic tissues depends upon a little white fibrous tissue, but upon the integrity of the levator ani muscle.

DR. A. J. C. SKENE, of New York, agreed with Dr. Wylie in his statement that complete lacerations do not cause prolapse. Another reason why there is no prolapse with lacerations in the median line is that compensation takes place in the levator ani muscle, the pelvic floor being drawn up, and prolapse consequently being prevented. He does not recognize the condition of so-called rectocele; what he finds in these cases is a mass of hemorrhoidal veins, and the best operation to correct this condition is Emmet's.

In closing, DR. WYLIE said that he could not see how it would be possible for any operation done in the median line to accomplish any good when the laceration has occurred in the sulci.

DR. FRANCIS DAVENPORT, of Boston, read a paper entitled "The Ultimate Results of the Treatment of Retrodisplacements by Pessaries." He admitted that there are certain objections to the use of the pessary, but thought that these have been exaggerated. Most women can wear pessaries without discomfort; all that is required is a certain amount of skill in the fitting of the instrument. One objection is that the pessary requires frequent attention from the physician; another is that it is a foreign body, and necessarily unpleasant; still another is that it does not cure, and must be worn for the rest of the patient's life. He gave the history of fifty selected cases of retroversion that had been treated with pessaries. Ten were completely cured, the uterus being held in normal position. Nine were benefited and symptomatically cured. Thirty-one were now going without pessaries, the uteri being in normal position, although they still had some symptoms. He stated that this treatment gave 20 per cent. of absolute cures. The shorter time the displacement has lasted, the sooner the cure. In cases in which operation is objected to, he thought a fair trial of the pessary should be made for several months, or a year.

DR. CUSHING, of Boston, thought that the usual statistics given on this subject are valueless, that too often the symptoms are treated, and not the cause. He was sure that but few cases required Alexander's operation. He believed in giving a fair trial to every form of treatment, including the pessary, and if then the uterus would not remain in position, and the symptoms continued, the abdomen should be opened and the trouble corrected.

DR. CLEMENT CLEVELAND, of New York, said that he believed in the use of the pessary and in Alexander's operation. He thought that there was a field for both, and that Alexander's operation was the most beneficent operation, and had come to stay. He had done the operation over forty times, with the most gratifying results.

DR. EDEBOHLS, of New York, contended that the only cases in which the pessary could be used are those in which there are no adhesions, and in which the tubes and ovaries are in a normal condition. In the other class of cases, which is by far the largest, his plan is to shorten the round ligaments. He has done this seventy-five or eighty times and always with success. There was always an anatomic cure, but not always a symptomatic one.

DR. WILLIAM H. WATHEN, of Louisville, presented a communication entitled "Retro-peritoneal and Intra-ligamentous Tumors of the Uterus and Adnexa." Although cysts of the paroöphoron and retro-peritoneal uterine myomata have not a common etiology, he considered both varieties of tumors together for the reason that the technique of the operation for their successful removal is practically the same. With but few exceptions, cysts that open up the layers of the broad ligament, and burrow deeply into the pelvic and retro-peritoneal connective tissue probably arise from remnants of the mesonephron in the paroöphoron. Either the cystic or the solid tumor may separate the peritoneum anteriorly and lie in front of it, attached to the bladder or to the fascia and muscles of the abdominal wall. In some cases the separation of the peritoneum may be so extensive that the tumor may be removed and enucleated through a median incision between the tubes and umbilicus, without wounding the peritoneum. The separation, however, is usually from the posterior pelvic and abdominal walls. The tumor, having passed beneath Douglas' sac, separates the mesorectum, mesocolon, or mesentery of the small intestine, and lies under the appendix, cecum, or ascending colon, and between these and the wall. The capsule is full of enlarged vessels, which bleed freely during the process of enucleation. These vessels may even be as large as sinuses, especially when the tumor has unfolded the mesentery of the bowel. The intra-ligamentous or retro-peritoneal tumors should not be removed without an intimate knowledge of the normal relations of the pelvic and abdominal viscera to the surrounding tissues and to each other. These tumors are mainly supplied with blood from the ovarian and uterine arteries, and successful enucleation depends largely upon an accurate ligation of these vessels. The dangers attendant upon the operation are hemorrhage from divided adhesions, from the capsule of the tumor, from the denuded surface of a myoma, from injury to the spermatic and uterine arteries, the iliac arteries and veins and the inferior vena cava, and wounding of the ureters, bladder, or intestines. The causes of death are hemorrhage, shock, and sepsis. To prevent injury to a ureter that may be in front of the tumor, it is best to incise the capsule and introduce ligatures parallel to the abdominal wound. Hemorrhage will be greatly lessened by careful enucleation close to the cyst-wall or the substance of the myoma, thus pushing the vessels in the capsule and connective tissue away from the tumor, without wounding them. In some cases by enucleating close to the tumor and the uterus it may be possible to perform total hysterectomy without ligating the uterine

arteries, which are pushed aside and left in the pelvis uninjured. Great care must be observed in separating the tumor from the bladder and the intestines, to avoid wounding or so injuring their coats as to give rise to sloughing. When the pre-vertebral space is reached the dissection must be done carefully, hugging the tumor, to avoid the ureters and deeply seated vessels. Hemorrhage from the substance of a soft cavernous myoma may be controlled by firm pressure with gauze or ligation *en masse*, the ligature being introduced deeply under the bleeding vessels by means of a long curved needle. Adhesions should be separated if possible between forceps or ligatures. The cyst should be tapped before enucleation is begun, for when this is done the caliber of the vessels in the capsule is reduced. If hysterectomy is necessary, total extirpation is preferable. If possible, it is best to ligate the uterine arteries to the outside of the ureter, before they give off branches to supply the upper portion of the vagina and cervix. There is no fixed opinion as to the treatment of the sac-cavity. It may be drained through the vagina, through the abdominal walls, with or without suturing the capsule to the abdominal wall, or it may not be drained at all—as when hemostasis has been nearly perfect and the operation aseptic. In total extirpation the vaginal vault should be closed by interrupted sutures.

THIRD DAY—MAY 31ST.

DR. MATTHEW D. MANN, of Buffalo, read a paper on "Inflammation of the Ureters from a Medical Standpoint." He contended that inflammation of the ureters is much more common than is generally supposed, basing his belief upon careful observations extending over a period of many years. Some of the the causes of such inflammations are pelvic cellulitis, suppuration in and around the pelvic organs, gonorrhea, and labor. The symptoms are pain and tenderness on pressure over the course of the ureters. Whenever these are present the urine should be examined. If its reaction is acid and pus is present, ureteritis should be suspected. Injury to the ureters occurs most usually when the head pushes down the anterior lip and drags down the bladder behind the pubes; it also takes place in instrumental deliveries. Ureteritis is frequently mistaken for inflammation of the bladder. It may arise from any condition causing obstruction to the flow of the urine. Gonorrheal cystitis may extend to the ureters. Dr. Mann expressed the belief that the pain and discomfort which persist in many cases after the removal of pus-tubes are due to unrecognized inflammation of the ureters. The vesical irritation associated with anteflexion is not so much due to the displacement as to the dragging on the ureters. An examination of the urine would prove this. The first symptom noticed in ureteritis is a slight catarrhal condition of the urine. If the ureters should now be palpated they will be found to be thickened and sacculated. The bladder is not generally affected, but there may also be cystitis. The pain is most commonly located on the left side, and is burning and cutting in character, and much aggravated at the menstrual period. The pain may be so severe as to make walking impossible. Increased frequency of micturition is the most common symptom. A curious symptom is a distaste for water. Bilious attacks and periods of great depression of spirits occur. The diagnosis is to be made by an examination of the urine and by palpation of the ureters. The urine is scanty and contains pus-cells and blood-cells; it is markedly acid in reaction; it contains a slightly increased amount of mucus. The treatment is constitutional, local, and surgical. The constitutional treatment includes hot baths, dry hot air, and the free use of water and alkalies; then medicines to increase the secretion of urine, and antiseptics to be excreted with the urine. Finally, the formation of a vesico-vaginal fistula at times gives marked relief.

DR. J. M. BALDY, of Philadelphia, expressed the opinion that inflammation of the ureters is very rare. When it exists, the only thing to do is to give alkalies. He thought that sweating the patient would concentrate the urine and thus aggravate the condition.

DR. A. P. DUDLEY maintained that there is one class of cases in which a mistake in diagnosis might be made, and that was between appendicitis and ureteritis. He believed that the disease begins in the ureter itself. He said that pressure upon the ureter from the various forms of disease of the appendages might cause obstruction of its caliber and result in disease in the kidneys.

DR. FORD thought that ureteritis occurs frequently in young women in whom there is no particular disease of the appendages. He agreed with Dr. Mann that the causes are mainly dietetic, lithemic conditions being brought about which caused irritation of the ureters. He had had good results from high enemata of water, introducing from three pints to two quarts. These acted as diuretics. Everything should be done to secure perfect oxidation.

DR. CUSHING, of Boston, thought that the condition probably existed in cases of obscure pelvic pains with frequent micturition and irritable bladder.

DR. CHARLES P. NOBLE, of Philadelphia, read a paper entitled "Symphysiotomy *versus* the Induction of Premature Labor." He gave an historic review of the subject with statistics showing the slight inherent risks to the mother when symphysiotomy is performed. In cases of contracted pelvis he prefers to allow the patient to go to full term, then to perform symphysiotomy and deliver the child by a high forceps-operation.

A paper by DR. THOMAS A. ASHBY, of Baltimore, on "The Influence of Minor Forms of Tubal and Ovarian Disease in the Causation of Sterility," was read by title.

NEWS ITEMS.

N. S. Davis Professorship in the Northwestern University.—Mr. William Deering, a prominent business man of Chicago, has donated $50,000 to the medical department of the Northwestern University of Chicago, for the establishment of a professorship to be named after Dr. N. S. Davis, otherwise known as the Father of the American Medical Association.

The Columbus Medical Journal, since the 1st of July, has been enlarged, and appears every two weeks instead of monthly, as heretofore. A commendable departure will be the elimination of interleaved advertisements. Dr. R. Harvey Reed is the new Editor.

Dr. Carl Posner, one of the editors of the *Berliner klinische Wochenschrift*, has been appointed Professor of Internal Medicine in the University of Berlin.

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ORIGINAL ARTICLES.

THE REACTIONS OF NUCLEO-ALBUMIN (ERRONEOUSLY STYLED MUCIN) WITH THE COMMONLY EMPLOYED URINARY ALBUMIN-TESTS: THE DIFFICULTY OF DISTINGUISHING THESE REACTIONS FROM THOSE OF SERUM-ALBUMIN, GLOBULIN, Etc.

Remarks on the Occurrence of a Normal, Constant Trace of Albumin in the Urine.[1]

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IN a paper[2] read before the Society for Clinical Research, I drew casual attention to certain fallacies attending the use of delicate tests for the detection of serum-albumin in urine, laying stress on one especial source of error which I regarded as the most important and misleading. This related to the frequent presence normally of nucleo-albumin in amount sufficient to react to nearly all of these tests, such as Tanret's, Millard's, and Sebelein's reagents, and to all other similar test-solutions containing tannin, mercury, or a vegetable acid. This also applied to picric acid, especially the citrated solution, and to metaphosphoric acid, but particularly to trichloracetic acid, now much in vogue as a reagent for the detection of small amounts of serum-albumin in the urine.

I pointed out that a reaction could be so commonly obtained from several of these, with the urine of the healthy, that unless this were regarded, it were unquestionably better in clinical work to depend upon the less misleading, if also less delicate time-honored methods, especially that by ebullition, with, if necessary, the addition of acetic acid.

I had at one time regarded the slight reaction so frequently obtained with healthy urine, as indicative of the existence of a physiologic albuminuria, but within the past year or two the result of certain experiments of my own and the work of others in the same field has rather tended to convince me that in the vast number of cases the substance reacting to the very delicate tests is a mucoid body probably originating from the cellular elements of the extra-renal passages. My reasons for so believing I have entered into elsewhere,[1] so need not here detail them. Lastly, re-experimenting with the delicate tests, in investigating certain cases of non-albuminuric nephritis, I have been especially interested to determine if the nature of the reaction often obtained by several of the very refined of these, and presumably not due to serum-albumin or to globulin, could be exactly determined, and whether it be due to a mucoid body, settled.

Exact experiments with various percentages of artificially added nucleo-albumin to albumin-free urine seemed the most satisfactory mode of ascertaining with certainty the nature of its reactions, and their differences from those of serum-albumin, serum-globulin, the albumoses and peptone, bodies with which there is no doubt that nucleo-albumin has repeatedly been generally confused by many of the most accurate and perhaps all of the careless workers in urinalysis. As stated in the paper previously referred to, urinary nucleo albumin, which is now regarded as identical with the nucleo-albumin of the bile, is not true mucin, though still improperly so termed by many who are unaware of the important differences in these bodies which separate them both chemically and physically. Briefly, these bodies are distinguished in that concentrated solutions of mucin are mucilaginous and thready; with acetic acid mucin gives a precipitate insoluble in excess, while mucin, as a glycoproteid substance, after prolonged ebullition with dilute mineral acids yields, besides an albuminous body, a carbohydrate which reduces copper hydroxid.[2] Magnesium sulphate, also, is without precipitating effect upon solutions of mucin, totally unlike the case with solutions of nucleo-albumin. These differences in reaction have shown that it is doubtful if true mucin is ever present in the urine, and that the reacting body is in reality nucleo-albumin. This fact is of the highest clinical importance, as apart from a local nucleo-albuminuria,[3] all the in-

[1] Read before the College of Physicians of Philadelphia, May 2, 1894.

[2] "A Serious Fallacy attending the Employment of Certain Delicate Tests for the Detection of Serum-albumin in the Urine, especially the Trichloracetic-acid Test," THE MEDICAL NEWS, May 5, 1894.

[1] American Journal of the Medical Sciences, December, 1893. THE MEDICAL NEWS, April 14, 1894. Ibid., May 5, 1894.

[2] See Hammarsten: Treatise on Physiological Chemistry. Sheridan Lea: The Chemical Basis of the Human Body. Neubauer and Vogel: Analyse des Harns. Gamgee: Physiological Chemistry of the Animal Body.

[3] That is, nucleo-albumin derived from the cells of some part of the urinary tract.

dications point to the fact that a nucleo-albuminuria, the nucleo-albumin of which is underived from any portion of the urinary passages, is of no uncommon occurrence. The clinical aspect of nucleo-albuminuria cannot now be discussed; suffice it here to state that it is a subject worthy of attention, and the study of which is in the line of the elucidation of not a little that is obscure concerning the question of albuminuria without nephritis.

In the course of recent experiments with urine from the healthy, specimens of day and food urine were often encountered which, with proper precautions to exclude precipitation of urates, gave a sharp cloud after appropriate treatment with acetic acid; but it was always found impossible to obtain by filtration, although dilution was first practised,[1] sufficient of a precipitate in this manner to be utilized for experiment, such really small amounts did the precipitate represent.

As urinary nucleo-albumin is unobtainable in trade the experiments were made with nucleo-albumin (Merck's) derived from bile. This substance is regarded as identical, both chemically and in point of its various reactions, with nucleo-albumin occurring in urine. This body was found to be very slightly soluble in distilled water, and much more soluble in neutral or in alkaline saline solutions. With none of these in concentrated solution did it have a mucinous appearance, and the other tests, including ebullition with a dilute mineral acid, and subsequent testing of the precipitate for a reducing substance, showed that the body contained no true mucin. In the solid state it gave the xanthoproteic reaction, but reacted doubtfully to Adamkiewicz's reagent, and gave no response to Millon's, Liebermann's, or to the biuret test. This last was also examined for in strong solution, without result. This lack of reaction to certain of these color-reagents is interesting not only as a point in separating the nucleo-albuminous response from that due to other albuminous bodies, but also in indicating that the nucleo-albumin employed in the experiments made by Müller,[2] in which he obtained all the color-reactions, was contaminated with a second albuminous body.

[1] Because of the soluble effects of certain of the urinary salts, it is more easy to remove the mucoid precipitate produced by acetic acid in dilute urine than in one of ordinary gravity. It is also on this principle that the interesting fact pointed out by Reisser is explained, that if to a specimen of urine which my be clouded by the addition of acetic acid, a second is added which is not so affected, no cloud may be produced by testing the mixture.

[2] See Neubauer and Vogel (loc. cit.). It is there stated that Müller obtained all the color-reactions with nucleo-albumin. The varying results there given can only be so explained. It is stated also that one observer noted that heat was without effect upon a solution of nucleo-alhumin, and a second the contrary. The experiments I detail were made in a manner precluding error of this sort.

Acting upon the fact that neutral salts, such as NaCl, AmCl, Na_2SO_4, and sodium acetate, serve to maintain the nucleo-albumin of the urine in liquescence, no difficulty was encountered in obtaining a perfectly clear solution of this substance. The diluents used for the experiments were saline solutions of distilled water and normal acid urine; the former was prepared to contain approximately the amount of mineral salts, represented by NaCl, and a less amount of sodium acetate, that exist in urine of ordinary gravity. No allowance was made for urea, and this is regarded as being without auxiliary solvent effect. Specimens of very clear, filtered, morning urine from normal individuals were employed which, unfiltered, gave no reaction with trichloracetic acid until after five minutes' contact. Nucleo-albumin was added in proportions varying from approximately 0.4 per cent. to 0.02 per cent. In the preparation of the solutions this substance was first triturated with a small quantity of the diluent, subsequently thoroughly agitated with the total amount, and on each occasion thoroughly boiled for some minutes.[1] After a large number of filtrations a clear solution could be obtained. When an amount upward of 0.4 per cent. was added, some slight residue always remained on the filter; with smaller portions solution of the whole quantity was readily obtained, although filtration in removing turbidity naturally coincidently withdrew a certain amount in fine suspension.

A very large number of experiments, approaching several hundred, were made with these solutions. A variety of tests in common use for the detection of albumin in urine were employed: ebullition with and without the addition of acetic acid; nitric acid; acetic acid and potassium ferrocyanid; metaphosphoric acid; plain and acidulated saturated solution of picric acid; Millard's reagent; trichloracetic acid, and a test-solution of mercuric chlorid with tartaric acid, a newly introduced reagent regarded of greater delicacy than Tanret's solution. Besides the employment of the color-reagents, notably the biuret test, the behavior of magnesium and ammonium sulphates in neutral solution was also ascertained.

The reactions with acetic and citric acids should be first mentioned. Citric acid was employed in both saturated and dilute solution. With these in all the various strengths of nucleo-albumin solution experimented with, a sharp contact-ring was ob-

[1] Lest ebullition have any decomposing effect upon the nucleo-albumin, altering its character, which, however, was not anticipated, in the form of menstruum employed, all the experiments detailed with the boiled solutions were repeated with solutions of similar strength prepared without heat. The results were identical. This likewise showed the absence of contamination by ordinary albumin, more than traces of which would, of course, be removable by boiling.

tained with a more or less diffused haze above. Acetic acid was used in the form of the liquid glacial acid, and in 2 per cent. and also in 25 per cent. strengths. The reaction with acetic acid was similar to those obtained with urines containing the mucoid body. The acid was applied both by the contact-method and by the addition of small amounts to 10 c.c. or more of the test-urine. A contact-ring was obtained with all strengths of acid, with a cloud above, though a less marked contact-reaction occurred with the undilute glacial acid, in which latter, indeed, nucleo-albumin can itself be dissolved. A cloud occurred instantly on the addition of small amounts of acid to the body of a few centimeters of test-solution, its intensity and rate of appearance varying directly with the amount of nucleo-albumin present, and inversely with the proportion of salts present.

A reaction occurred with HNO_3, employed by the contact-method, with all strengths of nucleo-albumin solutions. It was still apparent as a slight contact-cloud in a dilution giving but a trifling haze with plain picric acid. With solutions approximately 0.1 per cent. or more, though carefully underlaid by the acid with a capillary pipet, the whole stratum of solution soon became opaque, and after standing a short time a deeper, opaque ring was found at the point of contact of the two liquids. With less strengths than 0.1 per cent., such as from 0.05 to 0.08, it was easy to obtain an instantaneous contact-reaction quite like the ordinary serum-albumin ring, although it lacked the appearance of denseness; the latter, if of any depth, usually has little or no opacity above, with these strengths of solution so tested.

A slight contact-cloud was still apparent with the weakest solution used, approximating 0.2 per cent., a dilution which gave but a faint contact-haze with unacidulated picric acid after standing a few moments. A few drops of fuming HNO_3 added to a few centimeters of urine also produced a slight opacity in urine containing this same dilution of nucleo-albumin.

A combination of acetic acid and potassium ferrocyanid, a test for serum-albumin in the urine first proposed by Pavy, and now much in use, gave the ordinary albumin-reaction, entirely indistinguishable from that of serum-albumin.[1] This reaction was still apparent in the least strength tested. The reaction was decided at 0.05 per cent., and was still apparent at 0.025 per cent.

The various strengths of nucleo-albumin solutions also reacted similarly to metaphosphoric (glacial) acid. This reaction was in no way distinguishable from that of serum-albumin.

With considerable amounts of nucleo-albumin present, the whole solution above the piece of glacial acid became almost instantly opaque. With small amounts an almost instant contact-opacity occurred, typically such as is produced by serum-albumin, and gradually diffused from the portion of acid throughout the fluid. If but traces of nucleo-albumin were present, but still sufficient to react to acetic acid, though scarcely appreciable with unacidulated picric acid, the contact-response was delayed, not appearing for from two to three minutes, but soon becoming decided with longer contact.

A decided reaction was obtained with a saturated solution of picric acid, and with the citrated solution, indistinguishable in appearance from the contact-response with ordinary serum-albuminous urine. The ring was most sharply defined when the nucleo-albumin solution was of not too low a gravity (above 1010). No reaction, save a tardily appearing contact-haze, occurred, however, to unacidulated picric acid with a nucleo-albuminous dilution approximating 0.02 per cent., although the citrated picric acid still gave a ring, and a response was still evident to metaphosphoric acid, and very markedly to trichloracetic acid, to Millard's, and to the mercuric test.

I had before shown that unacidulated picric acid solution reacted to the urinary mucoid body,[1] which is contrary to the view of Sir George Johnson. These experiments finally settle the question.

With Millard's reagent nucleo-albumin solution continued to give a sharp contact-reaction with a dilution at which plain picric acid had entirely ceased to react.

With trichloracetic acid up to the weakest dilution of nucleo-albumin employed, a sharp contact-reaction was obtained. With a dilution approximating from 0.025 to 0.04, with which unacidulated picric acid gave no more than a contact-haze, a markedly broad, opaque ring was apparent with trichloracetic acid.

With the tartrated mercuric reagent a similar reaction was obtained as that of the others, although it was found that this reagent did not compare in delicacy with trichloracetic acid.

It is now of importance to study in greater detail the reactions of nucleo-albumin with these albumin-tests, and to determine, if possible, how they may be differentiated from the reactions of serum-albumin, serum-globulin, the albumoses, and peptone, but especially from the first named. It will be recalled

[1] Even so careful a chemist as Hammarsten (Text-book of Physiological Chemistry) does not speak of the similarity of reaction of nucleo-albumin and serum-albumin to either metaphosphoric acid or to the reagent of acetic acid and potassium ferrocyanid, in recommending these latter for the detection of albumin. No writer refers to confusion arising from the employment of metaphosphoric acid.

[1] By the removal of the reacting body with acetic acid in the cold. See American Journal of the Medical Sciences, December, 1893; THE MEDICAL NEWS, April 14, 1894.

that as thorough ebullition was invariably practised with the acid artificial or natural urine in preparing the nucleo-albuminous solutions, more than traces of ordinary albumin could scarcely be present; and that as it was necessary to repeatedly filter to obtain a clear solution for testing, more than traces of the albumoses, or so-called urinary peptones, if present, would also be removed; as filtration of the solution was repeatedly done not only while hot but after it was thoroughly cooled

The likeness of nucleo-albumin to urinary albumose or peptone is striking in several particulars. That the one has in the past often been mistaken for the other, I have no doubt, in view of the identity in many of the reactions of the two. This curious similarity in reaction of these bodies probably depends upon a close kinship. As Wright[1] and others have shown, nucleo-albumin is identical with cell-fibrinogen, which under the influence of ferments (proteolytic) is decomposed into a nuclein-moiety and albumose, or so-called peptone, the last of which is not infrequently present in the urine in cases of active leucolysis. It is conceivable and probable that traces of the albumoses are also present in the urine in conditions leading to proteolysis in the bladder of the urinary nucleo-albumin, through the action of pepsin and trypsin, which are normally present in the urine, and by the aid as well of formed enzymes. But that nucleo-albumin is not identical with the albumoses or peptone is shown by its ready precipitation by acetic and other of the vegetable acids, and by the fact, as I have ascertained, that it will not give the biuret-reaction. This last seems a very positive mode of differentiating it from the other albuminous bodies.[2]

Its differentiation from ordinary peptone is quite easy, as I have found that by saturating hot urine containing nucleo-albumin with ammonium sulphate, all traces of nucleo-albumin are removed, so that no response can be subsequently obtained with trichloracetic acid.

Its similarity in several points to serum-globulin is also quite striking. Its presence in the urine, I believe, has often been mistaken by those who are unaware that globulin very rarely, if ever, exists without the coincident presence of a greater amount of serum-albumin.[3] Like serum-globulin, if mucoid nucleo-albumin is present in some amount in the urine, as I have found is common in specimens of the day-urine (after food and exercise), it may not infrequently be precipitated from solution by considerable dilution of the urine with water, lessening the soluble effect of the urinary salts, or by dialysis to a very low specific gravity; or, like globulin, it may be readily thrown down by magnesium sulphate after neutralization with ammonia and separation of the earthy phosphates.

A strikingly interesting and important feature of the reactions of mucoid nucleo-albumin to the albumin-tests is the influence of heat. Although the presence of this body may be readily shown by the intelligent use of acetic acid or other of the vegetable acids, in the cold, yet without the assistance of heat it would be quite impossible by any reagent, were the reaction decided, save perhaps the biuret-test, to definitely assert that serum-albumin is not also present in some amount.[1] Heat with every test employed save two—the metaphosphoric acid, and acetic acid and potassium ferrocyanid—tends to diminish a nucleo-albumin reaction if the amount of this body present is in moderate or small percentage, such as is likely to be encountered in the urine. This result was invariable with a percentage upward of 0.15. With the presence of greater amounts, the soluble effect of heat was much less apparent; and with a percentage of from 0.3 to 0.4, heat was either without influence or slightly increased the reaction previously obtained. This effect, also, I have found varies in degree with different specimens of the diluent of approximately the same degree of acidity containing not only different strengths of nucleo-albumin, but the same amount. The cause of this variation seems largely due to the character and amount of salts present.[2] Albumin-free[3] urines, and artificial urines experimented with, showed this variation with different percentages of nucleo-albumin. The reagents, whether HNO_3, picric acid, trichloracetic acid, or others, seem to hold, after precipitation, a portion of the nucleo-albumin, so that a temperature approaching the boiling-point, even with very small percentages of nucleo-albumin present, will not entirely dissipate the precipitate.

[1] See a paper on "Tissue- or Cell-fibrinogen in its Relations to the Pathology of the Blood." A. E. Wright, Lancet, March 5, 1892.

[2] It would become a clinical mode of differentiation of great value were the biuret-reaction for albumin one of any delicacy.

[3] This seems well established, and yet not infrequently in urine-reports of cases it is noted that serum-globulin but no serum-albumin is present. In these instances the reacting body is probably nucleo-albumin, which, I believe, is nowhere noted as likely to be a confusing factor.

[1] This is important, in view of the frequent coëxistence of serum-albuminuria with a so-called mucinuria (nucleo-albuminuria).

[2] It is interesting to note that with approximately a 0.2 per cent. nucleo-albumin solution, containing NaCl, and a less amount of sodium acetate of a sp. gr. of 1017, the boiling-point has a slight precipitating effect. A further addition of a small amount of sodium acetate entirely prevented this precipitation in a second portion. Even without the presence of salts nucleo-albumin in small amount is apparently rendered more soluble by heat. A small amount shaken with distilled water, left, after a single filtration, a cloudy solution. Boiling at once cleared the latter.

[3] Save to trichloracetic acid.

Heat was most commonly applied in the manner detailed in the former paper,[1] by immersing the test-tube in hot water to a point beyond the upper line of fluid. In the trichloracetic-acid experiments there mentioned the bath was not always quite at 212° F., as so high a heat was not thought necessary. I was then unaware of the soluble effects of high heat upon traces of this mucoid body, accepting, as is commonly taught, that nucleo-albumin reacts to heat very much as does serum-albumin.[2] It evidently requires a temperature at or quite near 212° F., and prolonged—some minutes' contact—to insure a partial solution even with small percentages of nucleo-albumin. This is especially the case with trichloracetic acid. Nitric acid, and especially acidulated picric-acid solution, likewise retains a certain amount of the precipitant. With unacidulated picric acid the soluble effect of heat is more decided. The contact-coagulum obtained with it is dissipated to a greater degree by the aid of heat than with the others.

With potassium ferrocyanid and acetic acid, and especially with the metaphosphoric-acid test, however small the percentage of nucleo-albumin present, the soluble effect of heat is not evident. On the contrary, with the latter, heat tends to intensify the reaction obtained, so that it cannot in any manner be distinguished from that of serum-albumin. For this reason the clinical use of these reagents as precipitants of albumin must be regarded as absolutely untrustworthy, and should be unqualifiedly condemned.

It is important to study the effects of heat upon unprecipitated urine-solutions of nucleo-albumin. Heat, in any proportion of nucleo-albumin (in undiluted acid urine of ordinary gravity), upward of 0.15 per cent., is totally without precipitant effect. A few drops of dilute acetic or other acid which, added at ordinary temperature, cause a sharp cloud, are without precipitating effect upon the boiling urine. As cooling occurs, clouding results. When nucleo-albumin is present in proportion of from 0.3 to 0.4 per cent., whether ebullition was previously employed in obtaining the solution or not, clouding always resulted without the addition of acid on boiling. This behavior of the various strengths of nucleo-albumin, with urine as a menstruum, was invariable in a large number of experiments. It shows that when nucleo-albumin is present in amount approaching saturation, heat exerts a totally different effect from what it does on solutions of moderate strength. As these latter (upward of 0.15 per cent.) are, perhaps, even greater than can occur in any condition leading to the presence of nucleo-albumin in the urine, apart from a pronounced vesical catarrh, which cannot mislead, heat becomes the most important mode of differentiating a nucleo-albuminuria from a serumuria.

From these results it would follow that the only reliable test for serum-albumin, and that freest from liability to error, is the old-fashioned one by ebullition. But, apart from commonly recognized fallacies attending its employment, easily overcome, at least two important sources of error, strikingly developed in these experiments, are likely to arise with urine containing more than traces of nucleo-albumin. Treatises on urine-testing advise in the employment of the heat-test, the precaution that, should no reaction be apparent immediately on ebullition, the tube be inspected after standing and cooling, for cloud or precipitate, which, not being found to be due to acid urates, indicates albumin or an albumose. Now, as heat is without precipitating effect upon a naturally acid, nucleo-albuminous urine, to which no further addition of acid has been made in process of testing, precipitation of the mucoid body, under the circumstances, would not occur; but if an acid be added in the application of the test, clouding will surely result as the urine cools, unless the acid have been added in too small an amount to overcome the neutralizing effects of the urinary salts. As related, the experiments with mucoid nucleo-albumin, artificially added in moderate amounts to urine, indicate that high heat tends to dissipate the cloud produced by acids, although, after forming, it will not entirely remove all its traces.

A second source of error is that relating to the presence of an excess of earthy phosphates in a decidedly nucleo-albuminous urine. In the various experiments made with mucoid-fortified urines, specimens of the morning-urine were selected. On two occasions specimens of urine voided during the day were also employed as diluents, which, like the morning-specimens, were found not to react to trichloracetic acid within five minutes' contact in the cold. With these latter, and with one specimen of morning-urine, although all were acid, a cloud occurred in the fortified nucleo-albuminous specimens in the heated upper portion, which was not dissipated by the addition of a few drops of 25 per cent. acetic acid to 10 c.c. of the boiling urine. Control-specimens (containing no nucleo-albumin) were found to also cloud on heating, but were readily cleared by a small amount of acid. This indicates

[1] THE MEDICAL NEWS, May 5, 1894. This plan was pursued in order that mingling of reagent and urine is avoided when the contact-method is employed, as is so likely to occur by application of the flame directly to the tube.

[2] Treatises on urinalysis, save Neubauer and Vogel, state that urinary *mucin* is precipitable by heat. Reisser, quoted by Neubauer and Vogel, found that ebullition does not change urine rich in nucleo-albumin (By rich, Reisser probably meant upward of 0.1 per cent., which is the greatest amount he at any time encountered.)

that the presence of nucleo-albumin in a urine rich in phosphates—a combination quite usual in the healthy in the day-urine, especially in that after food and exercise[1]—interferes with the solution of the precipitated phosphates by acetic acid, heat being coincidently applied to assist in the clearing of the mucoid reaction. This is an important point, ignorance of which has doubtless often given rise to error. It is of signal interest, as many urine-examinations, more especially those for life-insurance, are made of specimens voided under conditions giving rise to the presence of an excess of urinary mucin and of phosphates. But mucoid nucleo-albumin present in amount likely to originate error,[2] reacts to acetic or to citric acid, or to other of the vegetable acids, clouding more or less markedly at ordinary temperature, so that, by this means at least, the presence of excess is proved.[3] In testing for serum-albumin, should ebullition now not clear the acidulated urine, or at least not greatly diminish, the precipitate, the excess of earthy phosphates in a second portion of the urine should be removed in the usual manner, and heat later applied to the acid urine which has been first cleared by filtration.

It is of interest to here briefly detail the subsequent behavior of one of these albumin-free phosphatic urines to which about 0.2 per cent. of nucleo-albumin was first added, after the tendency to the marked precipitation of phosphates by heat was noted. The excess of the latter was precipitated by ammonia and removed by filtration. Later, the urine was rendered rather markedly acid and the nucleo-albumin thus thrown down removed. Repeated filtration gave a very clear solution, of a specific gravity of 1025. This, at ordinary temperature, still gave a cloud to acetic acid, but, however, tended to become quite clear on ebullition. Specimens gave a contact-cloud with nitric acid and a marked contact-ring with Millard's reagent; with trichloracetic acid the reaction was very decided; with metaphosphoric acid it appeared within a minute and was marked; with unacidulated picric-acid solution no immediate reaction occurred, but at the end of a minute a contact-haze was discernible, not increasing to an outspoken ring after standing for some time. With citrated picric-acid solution a fine, sharp ring was instantaneous. With all of these reagents, save metaphosphoric acid, the extent of reaction was diminished by the application of decided heat, although with trichloracetic acid this reduction in amount of response was less manifest than with the others. The reaction of this specimen to the various tests was most instructive, as it contained a very small amount of the mucoid body, calculated by similar response of other specimens, to which measured amounts were added, to be 0.02 per cent. or less. This specimen was of especial interest for study because of correspondence in point of response to several specimens of day-urine from healthy subjects I had recently examined.[1] These gave a pronounced acetic and citric acid mucoid cloud, and responded quite markedly to the delicate tests for albumin, gave a narrow cloud at or near the meeting-line with HNO_3 by the contact-method, but did not react to heat alone.

So far as I am aware, the valuable aid heat may render toward promoting a response, in the application of tests used by the contact-method, for the detection of serum-albumin is nowhere mentioned. As apparently heat also becomes a factor of importance in the separation of the so-called mucin-reaction from that due to serum-albumin its employment is most essential when there exists the slightest doubt as to differentiation. I have frequently been able to bring out a serum-albumin reaction with HNO_3 used by the contact-method, by placing the test-tube in hot water for some moments, which response otherwise was most tardy in appearing, if eventually noted at all. The use of heat in this way, rather than the application of the naked flame to the tube, is essential, in order that actual ebullition in the tube be not permitted, otherwise disturbance of the relative relation of reagent and urine would interfere with the occurrence of a sharp contact-ring.[2]

Although I think it may be confidently asserted that a reaction so induced, as with one also apparent without heat, if decidedly sharpened by suspension of the tube in the water-bath, is due to serum-albumin (or serum-globulin), yet, on the other hand, as heat will not entirely remove a mucoid response after it has once appeared, there can be no great certainty as to the absence of recognizable traces of serum-

[1] Exercise and the process of digestion tend to increase the amount of mucoid substance in the urine. From the merest trace, undetectable in the morning-urine, it may rise in amount sufficient to cause a reaction to the contact nitric-acid test. I have noted this in the urines of several healthy male adults since examining into this point.

[2] In the phosphatic urine mentioned, an amount of nucleo-albumin was added approximating 0.1 per cent.

[3] I have elsewhere dwelt upon the precautions necessary to insure a mucoid response with acetic acid, in urines with varying amounts of salts in which recognizable traces of mucoid nucleo-albumin are naturally present. The precipitating effect of acetic acid on urates must be borne in mind. The latter are differentiated by the fact that their precipitate is colored and has a characteristic microscopic appearance. They may be also recognized by the fact that a gentle heat, short of that necessary to diminish a mucinous reaction, clears the urate-precipitate. Dilution of the urine, before the addition of acetic acid, will also tend to obviate a urate-precipitate and to increase a mucoid one.

[1] Tested in all points similarly to the reinforced mucoid urine save as regards the dissolving effects of strong heat.

[2] By this method acid urates and a mucoid reaction are both prevented.

albumin in the presence of the nucleoid body. If smaller amounts of albumin are looked for, the same must be said of the use of the delicate tests, although it would appear that if these are applied[1] with reagent and urine at the boiling-point—a method, of course, impracticable in ordinary routine urine-testing—no mucoid reaction will occur so long as these are maintained at a high heat. Of the many delicate reagents, unacidulated solution of picric acid has the least reacting power to traces of nucleo-albumin. Decided preference should, therefore, be shown it over all of the others, if the employment of a refined test seems essential. Citrated or otherwise acidulated picric acid should never be employed. Especially should it be avoided in the quantitative estimation of albumin by Esbach's method.

A serious fallacy attending the influence of heat upon the trichloracetic-acid reaction in the experiments with nucleo albumin should be here mentioned. It tends to further illustrate forcibly the impracticable, extraordinary delicacy of this reagent as a precipitant of albumin, and its inutility for clinical purposes. In the course of the investigation a control-specimen of acid urine previously unfiltered, of that portion used for experiment which gave no reaction at ordinary temperature with trichloracetic acid until some minutes' contact,[2] was thoroughly boiled and filtered while hot. This was done with the object of obtaining a control-solution in all particulars similar (save as regards the presence of nucleo-albumin) to the fortified nucleo-albumin specimen. To my surprise, it was found that this boiled and subsequently but once filtered control-specimen reacted more markedly to trichloracetic acid than did the unboiled, unfiltered, original specimen. I then found that both cold and hot distilled water ran once or twice through specimens of all of the various makes of white filter-paper in my laboratory, gave either instantly or after the lapse of a few moments the contact white ring with trichloracetic acid.

I then procured specimens of the very best grades of fine filter-paper other than those which I had. It was thought that some of these would certainly not so react. Bearing as this matter does upon the subject of fallacies attending albumin-testing, the result is worth mention. The specimens, four in number, obtained from Messrs. Queen & Co., were marked *Swedish; French;* No. 390 and No. 589. They were of equal size, with a capacity of about 20 c.c. Two of each variety were used, one for hot distilled water, the other for distilled water at room-temperature; from 5 to 7 c.c. of each were passed through the filters in the usual manner several times. No pressure was exerted to force the water through. The distilled water in each instance was free from trace of cloud after filtration as before.[1] A slight contact white ring characteristic of traces of albumin occurred instantly with all of the specimens of distilled water filtered while hot, and tested in all save with the specimen of French paper while still warm. The albumin-reaction was quite decided with paper No. 390. With the cold, filtered, distilled water the reaction was instantaneous only in two, with but one filtration; in the others it appeared in from one-half to one minute. In all, the reaction became very much more decided on standing a short time; but although the use of the water-bath had no diminishing effect, heat did not seem to noticeably increase the reaction, as is the case with serum-albumin. A fine cloudy haze throughout the body of the tube was, however, developed by heat, indicating a precipitating effect of the trichloracetic acid, aided by heat, on the minute traces of albumin present. Experiments of various other sorts were tried with these solutions and trichloracetic acid, which, though interesting, cannot be detailed here. Millard's reagent, plain or citrated picric acid solution, and the reagents of the tartrated mercuric chlorid were found to give no indication of reaction, even after standing in contact for some time.

Millard, a number of years ago, called attention to the fact that the coarse French gray filter-paper, which contains a great deal of cellulose or vegetable albumin, would yield sufficient to react to his reagent. This I long ago confirmed, finding that several of the delicate tests reacted to distilled water passed through the gray paper.[2] Trials made at that time with the white Swedish, French, and German makes, and the same tests, were resultless, so that it had not been suspected that a fallacy from this source, with a good quality of filter, existed.

To remove the traces of nucleo-albumin from suspension, it was necessary to repeatedly filter its menstruum; from three to six papers were always employed, all of which probably contributed their quota of albumin to the filtrate, which would increase the amount of albumin recognizable by trichloracetic acid uninfluenced by heat.

Trichloracetic acid as a reagent for the detection of albumin is of such exceeding delicacy that, though evidently of little practical utility for clinical purposes, it apparently may be utilized to demonstrate, without need for concentration of urine, the existence of a constant normal albumin-trace. A phys-

[1] Excepting metaphosphoric acid.

[2] And then but a very fine white ring, showing rather less than the ordinary normal traces of albumin.

[1] For the sake of exactness, a control unfiltered specimen of distilled water was also tested with trichloracetic acid. As might be expected, it gave no reaction.

[2] Trichloracetic acid had not then been proposed as a test for albumin, and thus was not used.

iologic albuminuria asserted to exist by Leube,[1] Fürbringer,[3] Kleudgen,[3] Senator,[4] Chateaubourg,[5] Capitan,[6] Posner,[7] and others, has been as strongly questioned by v. Noorden,[8] Millard,[9] Lecorché and Talamon,[10] and many others. The confines of this paper do not admit of even a cursory survey of existing data for or against this important question; the subject is one that requires much space for its consideration and will receive attention subsequently. Suffice it here to state that much of the work was done with concentrated urines, and the question of the frequent presence normally of extra-renal mucoid nucleo-albumin was often altogether ignored by those favoring the existence of a physiologic albuminuria. Leaving out of consideration the frequent high percentage of marked albuminurics among the apparently healthy, to be accounted for as a result of digestive derangements, circulatory weakness and the like, not omitting a latent nephritis, the fact that many of the experimenters in the field of physiologic albuminuria, who confidently hold to the existence of a normal minute albuminuria, fail to consider the presence of nucleo-albumin as a complicating factor, has thrown much doubt upon the results arrived at. Still regarding albuminous bodies other than serum-albumin which may be present in the urine and are calculated to mislead, the experiments of many observers[11] have at least shown that at times no reaction may be obtained with such delicate reagents as Tanret's and Millard's; and Leube failed to get an albumin-response in some entirely healthy urines which had been subjected to much concentration. If the experiments which I have detailed with the reactions of mucoid nucleo-albumin to certain of the tests for albumin represent those obtainable when this body is present in traces in healthy urine, as I think there can be little doubt, then it can be proved that Posner is right in asserting that all urines contain demonstrable traces of albumin, and that a physiologic constant minute albuminuria exists, an albuminuria which apparently is not due entirely to the presence of a mucoid body, although it may perhaps still be accidental or contingent, and not arising from the blood-serum of the renal vessels.

In the paper on fallacies attending the employment of delicate tests for albumin it was stated that in a series of 105 urines from presumably healthy male adults, 102 gave at ordinary temperatures a contact-reaction characteristic of albumin within five minutes, and that the remaining three also readily reacted within this time on the employment of heat, showing a contact white ring of one or more lines in depth. The reaction in the 102, further tested by heat, was apparently increased.[1]

Since the series of 105 consecutive urine-examinations, in all of which the specimens reacted, as stated, to trichloracetic acid, I have examined a series of 35 morning-specimens from presumably healthy males in the prime of life, none of whom contributed any of the preceding specimens examined.[2] With the exception of but 2, applying the technique detailed in the other paper, without the aid of heat, a reaction was noted in all[3] within five minutes. In nearly all of these it was quite marked in this time. In the remaining 2 a contact-reaction was noted within ten minutes. In 13 the reaction was instantaneous, but in 2 only was it immediately very decided, and these were found to be examples of markedly albuminous urine reacting to coarse tests. In 6 only of the 33 could the reaction be termed slight at five minutes' contact.

The effect of heat upon all of the specimens which had reacted before its application was carefully studied, and was noted to vary somewhat with different specimens. In some it very markedly and promptly intensified the sharpness and depth of the contact-ring, which had not been very decided before the use of the bath. With 4 the effect of heat was negative, viewing the tube after some minutes' exposure to the bath. The contact-cloud remained as before, deepening, however, quite markedly, as was the case with all, after cooling and standing. It was certain that in all heat developed earlier a reaction which, without heat, was several minutes in becoming well-defined. In one of the 2 in which no response occurred in the cold until after five

1 Virchow's Archiv, 1878, lxxii, 145.
2 Zeitschr. f klin. Med., 1880, i, 346.
3 Arch. f Psych., 1881, xi, 5, 478.
4 Die Albuminurie. Berlin, 1882.
5 Thèse de Paris sur l'Albuminurie Physiologique. Paris, 1883.
6 Thèse de Paris sur Albuminuries Transitoires. Paris, 1883.
7 Berliner klin. Woch., 1885, xxii, 654; Virchow's Arch., 1886, civ, 497.
8 Deutsches Arch. f klin. Med., 1886, xxxviii.
9 Bright's Disease. New York, 1892.
10 Traite de l'Albuminurie et du Mal. de Bright. Paris, 1888.
11 Lecorché, Talamon, Millard, and others.

1 As the influence of heat upon a slight mucoid reaction was not then understood, less attention was paid to long contact in hot water; nor was the latter always maintained at the boiling-point, it being more especially desired to differentiate as to urates rather than as to varieties of albumin. The nucleo-albumin experiments show that unless the heat be decided, and the amount of nucleo-albumin present small, the soluble effect of the former is not apparent. In fact, although lessening of reaction with heat was quite constant with traces of nucleo-albumin, it was not always so to the same degree. It was common, too, for a mucoid response to become again decided as the temperature of the water fell from boiling-point to a degree of heat still decided to the finger.

2 Thirty-one of these 35 were collected for me by my friend Dr G. M. Gould, to whom I am under warm obligations for them.

3 In the specimens of the 105 urines less than 10 of the number had been filtered before testing. In none of the present 35 was filtration practised. The portion to be tested was always taken from the upper stratum, after subsidence of any mucous cloud in suspension.

minutes' contact, it was noted that heat within a moment or so produced a contact-cloud of a depth of three or four lines, which cloud supplanted the slight, although more sharply defined, white ring evident without heat. The urine above in the tube also subjected to the bath became hazy. On inspecting the cooled tube subsequent to the use of heat, after it had been standing for some time, a sharply defined contact-ring was again noted of a much greater extent than at first, with a deep cloud above of some lines in depth.

One fact seems to me certain, developed by the examination of a series of nearly 150 specimens of urine from young male adults, the majority of whom are apparently in robust health, and none of whom had been regarded as renal suspects, that, excluding the 22 marked albuminurics, whatever the nature of the albuminous body reacting, a response may be obtained in any specimens of all urines of the healthy by the intelligent employment of trichloracetic acid. This response may not occur instantly, but usually develops within a few moments, and may be brought out in any instance by the use of heat in the manner described.

SYPHILIS OF THE NERVOUS SYSTEM.

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VIRCHOW has said that the cerebral manifestations of syphilis are as manifold as the cutaneous, and that the spinal manifestations are as manifold as the cerebral.

The early recognition of the essential nature of these various manifestations is of the utmost importance, for nowhere else in the whole range of therapeutics does prompt and vigorous treatment produce such wonderful effects as in syphilis of the nervous system.

The lesions produced by syphilis are of three kinds: first, the gumma; second, syphilitic endarteritis; third, the diffuse syphilosis of Heubner. In addition to the symptoms produced by these lesions, which act mainly in a mechanical way, the toxin of syphilis, under conditions which we do not at all understand, may directly attack the protoplasm of the nerve-cells or the axis-cylinders, which are composed of the same substance, as in paretic dementia and locomotor ataxia. This view finds support in the fact that central paralyses and psychoses may be caused by the toxins of other infectious diseases. Such occurrences have been reported as sequelæ of influenza, typhoid fever, measles, pneumonia, rheumatism, diphtheria, scarlet fever, and erysipelas. In these there can be no question of an extra-neural lesion, as in most cases of nervous syphilis; the toxins must have acted directly upon the nervous protoplasm, and any other changes found must have been secondary or merely coincident. We know that the toxins of various germs undergo great variation after prolonged cultivation or passage through the bodies of various animals. To mention a single instance of this, the virus of hydrophobia increases in virulence when passed through guinea-pigs, but diminishes in virulence when passed through monkeys. Why may we not reasonably suppose that the virus of syphilis, after prolonged cultivation in the body, may undergo such changes that, instead of producing its customary lesions, it acquires the power of directly attacking the nervous protoplasm? That such changes occur in the toxins of other infectious diseases is plainly shown by the fact that the central paralyses mentioned do not occur until long after the primary symptoms of infection have disappeared. In typhoid fever, for instance, these paralyses occur during convalescence, some eight or ten weeks after the primary infection.

When and by whom was the canon of syphilitic lesions declared closed, and who can say, "Syphilis can only produce a certain number of lesions of the nervous system; I deny that any other changes are specific in character?" To claim, as is so often done, that syphilis merely predisposes to paretic dementia and locomotor ataxia is, as Strümpell has well said, simply a meaningless expression. It is as if someone should say, "Typhoid fever can only produce one characteristic lesion, which consists in certain changes in Peyer's patches. If central paralyses occur during its course, I deny that these are directly due to the typhoid fever, though it may act as a predisposing cause"—and so on through the list of infectious diseases. The fallacy of such reasoning is apparent.

Syphilis during its various grades of culture in the human body shows a preference first for one and then for another of the tissues—attacks now the skin, now the mucous membranes, now the bones, then the meninges of the brain or cord, or the walls of the bloodvessels, etc. It is only necessary to add another category of specific lesions, viz., those cases in which it attacks the nervous tissue proper.

We might class the various forms of nervous syphilis under the following heads:

1. Gummatous.
2. Vascular.
3. Interstitial.
4. Parenchymatous.

Gummous syphilis produces, of course, merely the symptoms of tumor. If the gumma be in the motor area, there will be epileptiform attacks or paralysis, according to the degree of pressure; if it press upon the cord, a compression myelitis will

occur; if it impinge upon a nerve, a neuritis will result, and so on.

In vascular syphilis the cerebral symptoms are those of apoplexy, from rupture of a bloodvessel, and thrombosis with its attendant cerebral softening, which is brought about by the narrowing of the lumen of the vessels and roughening of the internal coat from endarteritis. Cases of acute transverse myelitis, following syphilis, probably arise in the same way; while in chronic myelitis there is a slow cutting off of the blood-supply, but no formation of a thrombus.

The interstitial form is attended by an increase in the connective tissue, its organization into bands of sclerotic tissue, the occurrence of a syphilitic exudate, and so on. This gives rise to meningitis, which may extend into the cord and produce a meningo-myelitis, or it may produce an interstitial encephalitis.

Under the head of parenchymatous syphilis are to be included the syphilitic psychoses, syphilitic neurasthenia, paretic dementia, locomotor ataxia, progressive bulbar paralysis, progressive muscular atrophy, and amyotrophic lateral sclerosis.

The psychoses are placed under this head for the reason that similar affections are often produced by the toxins of other infectious diseases, notably by that of influenza, which must act directly upon the nerve-substance; the symptoms are too widespread to be due to gumma; the complete recovery of many of these cases would seem to shut out interstitial and vascular changes, for these leave permanent results.

The propriety of placing paretic dementia under this head will, no doubt, be questioned, for it has been much discussed whether the primary changes in this disease are interstitial or parenchymatous. The weight of authority seems to be in favor of the latter view. Hirt states that "this view, according to which the atrophy is the primary process, is in all probability correct, though it is still combated by many authorities (Mendel), who look upon the death of the nerve-fibers as the secondary, upon the increase of the connective tissue, the thickening of the vessel-walls, and the appearance of spider-cells as the primary process."

Ziegler says, in his *Lehrbuch der allgemeinen Pathologische Anatomie und Pathogenese:* "The disturbed nutrition and the degeneration of the ganglion-cells and nerve-fibers are the important matters; while the inflammatory infiltration and the increase in the connective tissue have no real significance as far as the symptoms of the disease are concerned."

And Strümpell remarks: "We ourselves, with Tuczek, Wernicke, and others, are much more inclined to the theory that we have to do mainly with a primary process of degenerative atrophy of the nerve-fibers and nerve-cells, to which the increase of the connective tissue is only a secondary addition."

Finally, the influence of chronic alcoholism in the production of this disease, upon which Magnan lays such stress, would seem to sustain this view, as alcohol is a parenchymatous poison.

Precisely the same discussion has been waged concerning the primary lesion in locomotor ataxia, some holding that the disease first causes an atrophy of the axis-cylinders of the affected nerve-fibers, which is followed by a sclerotic process, while others maintain the opposite view. The trend of opinion at present seems to be toward the first view.

The same considerations apply, of course, to the question of the intimate nature of syphilitic neuritis.

The question of diagnosis brings up Wood's famous therapeutic test, viz.: "The vast majority of persons who are free from syphilitic affection cannot take doses of over ten grains of potassium iodid three times a day without the production of iodism, except as the result of the habitual use of the remedy."

The active discussion which the announcement of this rule brought forth served to arouse the attention of the entire profession in America upon this point. So many cases of tolerance of iodids in large doses in which there was no suspicion of syphilis were found, on the one hand, and so many undoubted syphilitics who could not tolerate thirty grains *per diem*, on the other hand, that I believe that I am stating the general opinion on the subject in saying that the word "vast" should be stricken out.

The prognosis is determined by two considerations—the length of time the disease has lasted and the nature of the lesion. Many physicians have the idea that because the disease is syphilitic the prognosis is invariably good; but one should consider how much of the new tissue is syphilitic, and therefore removable by treatment, and how much is extra syphilitic and permanent. Specific remedies will cause a gumma to disappear, but they cannot dissipate the connective-tissue growth which the presence of the gumma has called forth. Victor Horsley has gone so far as to advise the surgical removal of well localizable gummata.

The prognosis seems to be best in the gummatous form of nervous syphilis, for the reason probably that this soonest of all produces marked symptoms which call attention to its presence. If a man suddenly develops epileptiform attacks or paralysis, he will at once consult a physician, and if the cause is recognized the prospect of permanent and entire relief is good. But a patient might suffer for months with the much more vague symptoms of syphilitic endarteritis without consulting a physician until the

occurrence of thrombosis would place him beyond all hope.

The prognosis is next best in parenchymatous syphilis. Out of twenty-three cases of syphilitic psychoses collected by Wood in his monograph there were twenty-one recoveries, one apparent recovery, and one relapse, which resisted all specific treatment. Now, it is entirely out of the question that these psychoses should have been produced by gummata, or even by multiple gummata, for the symptoms were too widespread, involving the entire cortex. They must, then, according to prevailing ideas concerning syphilitic lesions, have been due to interstitial or arterial changes. But if such changes had progressed so far as to produce marked psychoses, could these patients have made a complete recovery? Is there any evidence that specific treatment can restore the lumen of a vessel obliterated by syphilitic endarteritis or remove interstitial connective tissue? Is the sclerotic tissue in these cases in any sense specific, does it differ in anywise from other sclerotic tissue, is it any more susceptible of removal by treatment when it has once formed? Is it not precisely in those cases in which the lesion is interstitial or arterial that treatment does least good or entirely fails?

If we admit, on the other hand, that there is a parenchymatous form of nervous syphilis; that the cells of the cortex have a wonderful power of resistance to poisons, as is shown in the prolonged abuse of alcohol and opium; that their action may be perverted by various poisons for years, and yet when the poison is removed they will entirely recover their functions; that when they are overcome by the poison and die, their place is filled in by connective tissue—admitting these things, we have, it seems to me, a satisfactory explanation of the occurrence of these psychoses and recovery from them.

Even in syphilitic tabes, according to Erb's statistics, the prognosis is fairly good, if the secondary sclerotic process has not advanced too far.

Gowers has announced an exceedingly important fact bearing upon the treatment of syphilis, viz.: that the germs rapidly acquire a tolerance of the iodid, which they as rapidly lose. Hence the best results are gotten by administering iodid for a period of six weeks, and discontinuing it for a like period. The continuous use of the iodid defeats its object.

Certainly there are few American physicians who will agree with Gowers when he says: "I believe that this dose of iodid (grs. xv t. i d.) is adequate, and will do all that can be done in the course of four to six weeks. It is better not to give larger doses, because coagulation of the blood plays a part in the mechanism of destruction, and large doses of the iodid, as the history of aneurism has taught us, increase the tendency of the blood to clot." The use of massive doses of the iodid in these conditions originated in the United States, and certainly every one has seen cases in which fifteen grains three times a day would not affect the condition, but which improved rapidly under several hundred grains *per diem*.

In choosing between the iodid and mercury, the greater rapidity with which the latter acts should be borne in mind. Nervous syphilis is so treacherous a disease, the lightning is so apt to strike one out of a clear sky, that it is certainly wise to lose no time, but to begin treatment with a thorough course of mercurial inunction. This method of administering mercury is far preferable to any other in this class of cases.

The importance of varying and individualizing the treatment should be remembered. When the case has come to a standstill under the ordinary remedies, undoubted good is done by the vegetable alteratives.

A very important matter is that of prophylaxis. In how far is nervous syphilis preventable? This is classed among the tertiary symptoms. The following are Fournier's latest statistics upon this subject. Among 1703 cases tertiary symptoms appeared in the following numbers, their previous treatment being known:

	Cases.
No treatment	217
Short treatment (under one year)	1162
Moderate treatment (from one to two years)	265
Long treatment (over two years)	53
Treatment exceeding three years	6
	1703

"We find, then," says Fournier, "that among 1703 cases there were 59 in which tertiary symptoms appeared after, and in spite of a vigorous and, we may believe, sufficient treatment; while there were 1644 cases after an abbreviated, insufficient, or expectant treatment."

Again, in 100 cases of cerebral syphilis, Fournier found 5 which had received vigorous and prolonged treatment with mercury; in 6 cases the treatment was of a moderate but doubtless insufficient duration; 10 patients were only treated from 7 to 18 months, and 70 from 1 to 6 months; in 4 there had been no treatment; and 5 had taken nothing but the iodid.

Fournier draws the following conclusions from these facts: "Out of 100 patients, 5 had received a thorough and prolonged treatment, as against 95 who had received some other treatment, or none at all. So, then, syphilis of the brain is nineteen times rarer after prolonged treatment."

As to what proportion of cases present nervous syphilis, Fournier states that among 3429 cases, 1085 were instances of syphilis of the nervous system.

In discussing these statistics before the Wiener Medizinisches Doktoren-Collegium, November 6, 1893, Dr. Finger remarked that at the Congress in 1889, when Fournier presented these statistics, other authors, Mauriac, Haslund, Leloir, reported very similar results. As to syphilis of the nervous system, it should not be overlooked that Fournier considers tabes, progressive paralysis, and the muscular atrophies as syphilitic.

The object of therapy in syphilis is to prevent the appearance of tertiary phenomena. It is well known that the frequency of the tertiary symptoms is in inverse ratio to the lightness of the secondary stage, and this is for the reason that we adapt the symptomatic treatment to the light, secondary stage. The symptomatic treatment is a defensive procedure; it deals with the present symptoms. A portion of the virus remains behind, and, thanks to the treatment, has time to increase and make a new attack. This again is dealt with defensively, and so the scene repeats itself over and over. It is much more logical constantly to attack the virus. But as the mercury accumulates in the system and the latter becomes accustomed to the poison, there should be intermissions in the treatment. Finger had used the prolonged treatment for ten years, and had very seldom seen tertiary symptoms in his patients or hereditary syphilis in their children (*Deutsche med. Zeit.*, 1893, No. 95).

As tertiary symptoms have occurred as long as fifty-five years after primary infection, one had best give these patients a life-sentence, and tell them that they must keep up treatment the rest of their lives. Let them take six weeks' courses four times a year. The physician should lose no opportunity of dangling Damocles' sword of nervous syphilis over the heads of these patients. It is amazing what perfect indifference many of them show and how difficult it is to make them keep up treatment.

In conclusion, I wish to report briefly some of the cases of syphilis of the nervous system which have come under my notice and which present points of interest:

CASE I.—This patient had progressive aphasia from a syphilitic lesion. There were no other symptoms. He lost his parts of speech in regular order, following exactly Ribot's law; first proper names went, then adjectives, and so on. Finally his whole vocabulary was reduced to interjections, expletives and oaths. He recovered his parts of speech in the inverse order—in the order in which evolutionists say that mankind acquired them. This case serves to show what a deep, fundamental need of our nature profanity supplies. The lesion was evidently a gumma exactly limited to the speech-center.

CASE II.—I was called in consultation to see a policeman. He had complained of headache for a day or two, and then in a few hours became comatose. When I saw him his breathing was slow and stertorous, pupils uneven, pulse full and labored, and there was left hemiplegia. I felt strongly inclined to bleed him. A history of syphilis being obtained, he was ordered mercurial inunctions, to be followed by increasing doses of the iodid. In six weeks there was no trace of the hemiplegia left. This was probably one of those singular cases of sudden congestion about a gumma, like the apoplectiform attacks of multiple sclerosis.

This man now presents uneven pupils, hesitancy in his speech, failure of memory, and fibrillary tremor of the lips; but in spite of all I can do, it is impossible to get him to keep up his treatment. When he has his next attack I shall certainly bleed him.

CASE III.—G. X., a Portuguese sailor, was an inmate of the Louisville City Hospital for about a year and a half. No history could be gotten. He had all the signs of cerebellar involvement, strabismus, diplopia, vomiting, and titubation. His gait was like that of a drunken sailor on shore after a long sea-voyage. He was given the benefit of the the doubt and placed upon specific treatment, taking at one time as high as 200 grs. of the iodid at a dose. This produced rapid improvement up to a certain point, but beyond this it was impossible to benefit him by any amount of treatment. Probably what had happened was that the syphilitic portion of the cerebellar gumma had been absorbed, leaving behind a considerable mass of scar-tissue.

CASE IV.—J. H. thirty-four years of age, suddenly developed violent epileptiform attacks. They came quite close together, and in the intervals between them he complained greatly of headache and insomnia and was very confused mentally. I saw him about an hour after the third attack, which came within a week of the first one. He was sitting stupidly upon the side of the bed, unable to recognize anyone. In a case of this sort it is hardly necessary to ask a single question. He was put upon treatment at once and made a complete recovery, never having another attack. This case shows how favorable the prognosis of gummatous syphilis is *sometimes*.

CASE V.—L. F., a lawyer, aged forty five, noticed one day that his left foot dragged a little and he had difficulty in raising the toe of his shoe from the ground. By the next morning the weakness had extended to the arm. I saw him the afternoon of the same day, when the left side of his face was somewhat involved. On inquiry he admitted that he had had a sore on his penis some twenty years before, which had healed up after six weeks of treatment. Evidently there was a gumma situated near the median line on the right side and spreading down over the motor tract of the right hemishpere. Remembering my experience with Case IV, I gave a favorable prognosis. The patient improved so rapidly under mercurial inunctions that he was able to leave for Atlanta in a week, where he died about two months afterward. Whether the treatment was not properly carried out, or whether it was one of those singular cases which prove utterly rebellious to treatment, I am unable to say.

CASE VI.—J. T. entered the Louisville City

Hospital on Wednesday morning in a state of great mental confusion, and unable to give any account of himself. That night he became maniacal and had to be strapped in bed. I saw him Thursday morning. He was comatose and had left hemiplegia. There were characteristic scars over the tibia. On making firm pressure over the left tibia the patient drew up his right leg and made a defensive movement like a Goltz frog. That night he was so wild that he could hardly be kept in bed. He died on the next morning. A post-mortem was held that afternoon. We found softening of all that part of the right hemisphere supplied by the Sylvian artery, which might well be called the motor artery. The arteries at the base were grayish in color, resistant to touch, and patulous. The caliber of the Sylvian artery was reduced to the size of a knitting-needle, its inner coat was roughened, and it was completely obstructed by a thrombus.

CASE VII.—P. S., foreman of a bridge-company, forty years of age, entered my office one day with marked ptosis. I asked him at once, "How long is it since you have had syphilis?" "Twenty years," he responded, greatly astounded at the omniscience of the medical profession. Ptosis in an adult is a symptom which points very strongly to nervous syphilis. The patient dated his present trouble from a blow received upon the head about three months before. It has been very much debated whether injuries to the head have any localizing influence in such cases. He had had very little treatment at the time of the initial lesion; there were no secondary manifestations. Recovery followed.

CASE VIII.—Mrs. S., a widow, twenty-nine years old, had suffered from constant headache for nine weeks, for which she had received hypodermatic injections of morphin and ten-grain doses of potassium bromid, that panacea for all diseases of the nervous system. When I saw her she had reached that stage when she could neither sleep nor remain awake. About three weeks before, she had had an attack in which she fell to the floor and lay unconscious for perhaps twenty minutes, when her daughter came in and helped her to bed. She knew nothing more then for twelve hours. There were nocturnal exacerbations of the headache. Examination revealed the presence of a tumor in the forehead about the size of half a pea, which was exquisitely sensitive to pressure. She had lost thirty or forty pounds in weight and could eat nothing. This case would probably have ended fatally in a short time if its nature had not been recognized. After forty-eight hours of vigorous treatment the headache showed signs of yielding, and has since entirely disappeared. This was a genuine case of "syphilis insontium," as the woman was so ignorant that she did not know the meaning of the word syphilis. Her husband had died about three years before of a "relapse of the measles," at Hot Springs.

I debated some time whether or not I should inform her of the true nature of her headache, and finally concluded that it was best to do so, as she might fall into ignorant hands again. She gradually recalled certain significant facts. She had been treated once for a mysterious uterine disease; her husband held long secret confabs with the doctor in the hall. There had been a sore at the corner of her husband's mouth, which the doctor had warned her she must be careful not to touch in case she had any sores upon her hands. She has two children with Hutchinsonian teeth. Subsequently she developed syphilitic iritis, which yielded promptly to treatment.

CASE IX.—Dr. Ap. Morgan Vance referred to me a little girl, two years old. The mother gave the history of having had two children stillborn at full term, and one miscarriage. The child had marked spastic paraplegia, with greatly exaggerated tendon-reflexes, and Hutchinsonian teeth, and was very backward in mental development. She could not crawl upon the floor, and her vocabulary consisted of three or four words. The treatment consisted in mercurial inunction, prolonged warm baths, and galvanism to the spine. In eight weeks there was marked improvement in the symptoms, the mental change being especially noticeable. She has continued to improve steadily since then, and is learning to walk and to talk. Another similar case sent me by Dr. Vance has shown improvement under the same treatment.

CASE X.—J. K., forty-seven years of age, gave the history of a chancre some twenty years ago, for which he took treatment until the sore healed. No secondary symptoms followed. About three years ago he began to notice that it was difficult for him to walk at night, so that he stopped going out after dark. I saw him several months after this, when he presented the following symptoms:

Argyll-Robertson pupils, girdle-sensation, vesical disturbance, swaying with the eyes closed, anesthesia of the lower extremities to a slight degree, ataxic gait, and exaggerated knee-jerk. This case corresponds to Erb's type of spinal syphilis. No improvement followed under potassium iodid carried up to 600 grs. per diem, and there were no symptoms of iodism. There was some improvement under mercurial inunction.

CASE XI.—I was called to the City Hospital one night to see a woman who had suddenly developed acute mania. She was strapped in bed with her hands in the muff, and was filled with a burning desire to cut somebody's heart out. She quieted down under a large dose of chloral. The diagnosis of cerebral syphilis was easily made, as she was an "old rounder" who had formerly been treated for a chancre. Vigorous specific treatment was at once instituted, and she made a prompt and complete recovery. No other cause but syphilis could be discovered for the attack. It seems hardly possible that it could have been due to grumma, to interstitial syphilis, or to syphilitic arteritis. Yet the ready response to treatment showed that it was specific in nature.

CASE XII.—One of the internes at the City Hospital called my attention to a man who was sitting half asleep upon the edge of his cot. When aroused he stated that he could not remain awake for five minutes at a time, neither could he sleep soundly. At night he was in a condition bordering upon mild delirium, and showed a disposition to get out of

bed and wander about the ward. This state is well nigh pathognonomic of cerebral syphilis, which may produce the condition of extreme sleepiness or extreme wakefulness. The patient made a speedy recovery.

Case XIII.—J. D., a laborer in the glassworks in New Albany, Ind., developed symptoms of locomotor ataxia about three years after the initial lesion. The case progressed so rapidly that when I saw him, twelve months afterward, he was far along in the third stage, with complete optic atrophy, loss of control of the sphincters, etc. He died about two months afterward. The nature of his disease had not been recognized, and he had received no specific treatment. He stated that the room in which he worked at the glassworks was so full of gas that it was no unusual thing for a man to be overcome by it and fall unconscious. What effect this may have had in the development of his spinal lesion it is impossible to say.

Case XIV.—W. T., fifty-one years of age, was entered in the case-book at the City Hospital as a case of locomotor ataxia, the simple definition for this disease in vogue at that institution at that time being, "a disease of the spinal cord, causing disturbance of gait." The man really had paretic dementia of syphilitic origin, with descending degeneration of the crossed pyramidal tracts, producing spastic paraplegia.

There were delusions of grandeur. He promised a horse and buggy to each of the internes. Besides this, he had uneven pupils, fibrillary tremor of the lips, and other signs of paretic dementia. He left the City Hospital and wandered about the streets for several days, sleeping in outhouses. The last time I saw him he was sitting upon the curbstone, with his feet in the gutter. He hailed me cheerfully, and said, "I'm goin' to send you that horse and buggy next week, shore."

215 W. Chestnut Street.

A TREATMENT OF TYPHOID FEVER.[1]

By SAMUEL A. FISK, A.M., M.D.,
of Denver, Colorado.

In these days, when the Brand treatment of typhoid fever is the only one receiving any consideration, and the discussion in medical circles, with reference to the treatment of this disease, is confined to a consideration of hydrotherapy, it seems a little presumptuous for one to come forward with another presentation of the subject. My excuse must be that an observation of the results obtained by another method of procedure, extending over a number of years past, has led me to the conclusion that there is in this method something that is, at least, worthy of consideration. I am duly sensible that the presentation that I can give of my subject, at this time, is not based upon such a series of cases so scientifically conducted as to carry the fullest conviction, and my regret is that the hospital-services of a somewhat new community do not afford the same opportunities for careful and scientific investigation as exist in older and more settled centers. That my opportunities for observation have not been altogether limited will be illustrated by a study of the mortality-tables of Denver and of other cities.

In his recent report on typhoid fever, Professor Osler states that for the years from 1888 to 1892, inclusive, Baltimore gives a yearly average of 229 fatal cases; Boston a yearly average of 160.4 fatal cases; New York a yearly average of 379.4 fatal cases; and Philadelphia a yearly average of 661.8, while Denver for the same length of time gives a yearly average of 149.6.

My observation of typhoid fever, both in private practice and in hospital-service, during these years has brought me to the belief that the line of treatment which I, in common with a few others in Denver, have followed was productive not only of a small rate of mortality, the exact ratio of which I unfortunately cannot give, but also of a mild run of the fever, a minimum of complications, and a very decided diminution in the duration of the attack.

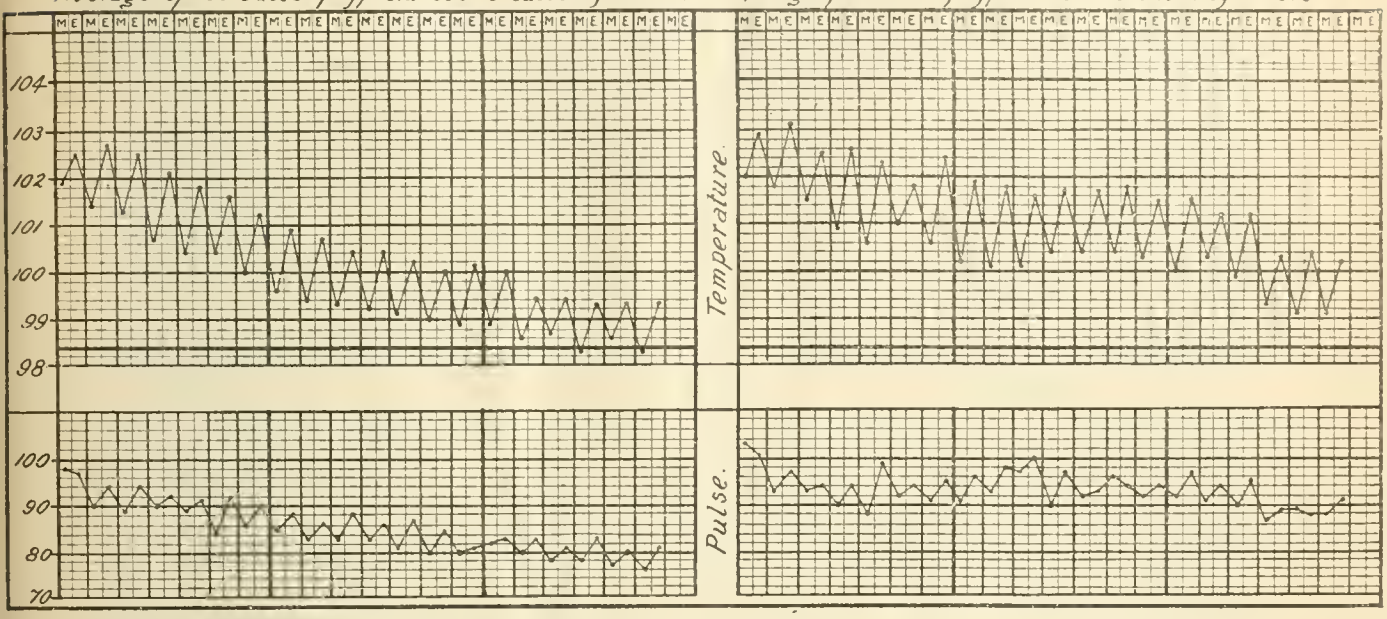
I beg to base my presentation of the subject on the accompanying charts. The first is a composite of thirty cases of typhoid fever, temperature and pulse occurring under my own observation; the second is a composite of thirty cases, temperature and pulse, occurring in the services of other practitioners at the same hospital with myself, and I wish to state that the composite is introduced with the consent of my confrères and solely for the purpose of illustrating my subject. The third chart is taken from the article by Professor William Pepper in his recent American text-book of the *Theory and Practice of Medicine*, and is introduced as a typical chart of typhoid fever. The cases selected to make up the composite are assumed to be average cases scattered over three seasons and are not taken with any view to influencing unduly the result. The composite in each case is obtained by adding the thirty morning temperatures on the day of admission and dividing by thirty and so obtaining an average. The same is done with all the other morning and evening temperatures and pulse-rates. For the accuracy and care with which this has been done I am indebted to my friend Dr. C. D. Nelson, a recent graduate of the Harvard Medical School. The composites would seem to indicate that the average case, in hospital-service, comes under observation with us, as with Professor Osler, at about the end of the first week. Comparing, then, the composite of the thirty cases of my confrères who did not use the Brand treatment, with the typical chart

[1] Read before the Association of American Physicians, Washington, May 29, 1894.

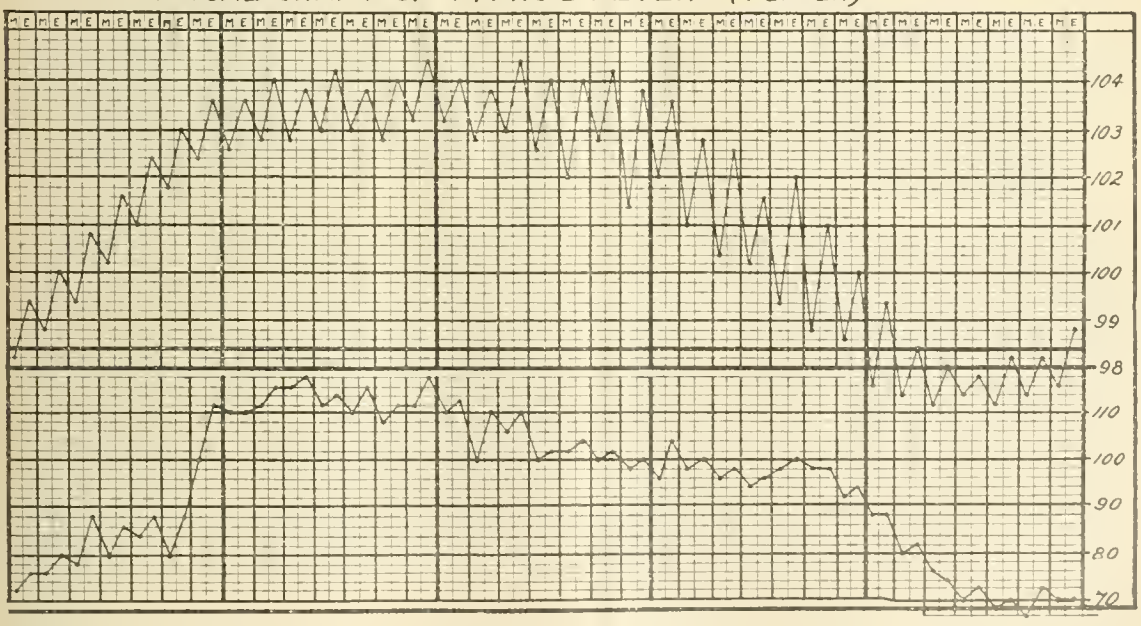
of Pepper, it would seem that the average case of typhoid in Denver is a milder one than prevails in Eastern cities. But our mortality, averaging 1.5 deaths to every 1000 of population, indicates that it is not without danger even here. Even allowing

late Dr. James H. Hutchinson, has justly remarked that "medicines are, however, by no means useless in the treatment of typhoid fever. There is no question that the disease is not only generally conducted to a favorable issue, but that its duration is often

COMPARATIVE CHART



TYPICAL CHART OF TYPHOID FEVER (PEPPER)



that the prevalent type is milder with us than elsewhere, which I am in doubt about, it nevertheless seems, from the composite of my own thirty cases, as though treatment had a decided influence in affecting the type. So careful an observer as the

materially shortened by their judicious use." My own composite would seem to show the justice of this remark. I myself was greatly surprised to see the result of the composite. The steady decline of the temperature from the very outset and a coinci-

dent decline of the pulse-rate are marked. It does not show the ordinary stage of *fastigium* with its two weeks' duration and then the decline by *lysis*. It goes without saying that with this decline in temperature and pulse there is a steady improvement in all the symptoms. The patient, of course, loses flesh and strength. He is not likely to suffer from delirium, from tympanites, from dryness of the tongue, from sordes, or from tremor or any marked nervous symptoms. I might say that I never, or almost never, see a dry tongue, and such delirium as I witness is likely to be mild in character and confined to the night hours of the first few days, and generally disappears in a short time with the subsidence of the headache. In the main the treatment is as follows:

Absolute rest. If the patient is seen early in the attack, as gauged somewhat by the absence of rose-spots and other constitutional symptoms, I give five grains of calomel at night and follow it with a Seidlitz powder, or some saline, in the morning, and this is the only administration of calomel during the progress of the disease. I then put the patient on an absolute milk-diet, giving a tumblerful every three hours. As a rule, I am not influenced by the patient's ideas that it is impossible to take milk, but determine that by my own observation. When I find this to be true, I have the milk peptonized and sometimes change to buttermilk. Extractive matters in the way of broths and extracts are not used, as they always seem to me to be harmful.

The turpentine-mixture used is becoming well-known in our hospitals and is meeting with great favor. It is constituted as follows:

R.—Ol. terebinthinæ . . . . . f℥j
Ol. ricini . . . . . f℥j.
Bismuthi subnitratis . . . . ℥iv.
Mucil. acaciæ . . . q s. ad f℥iv.—M.

This must be shaken well and a teaspoonful given in a little water twenty minutes after the goblet of milk. The turpentine in this formula seems to be sufficient to keep the tongue moist and to stimulate the bowels; the castor-oil keeps up the secretions, and the bismuth acts, as is well-known, as a dressing to the inflamed mucous surface; the last also has a constipating effect, which is overcome by the administration of castor-oil, from a dessertspoonful to a tablespoonful every other morning. For the restlessness of the first few days, which is especially marked at night, I use either five grains of Dover's powder, to be repeated once or twice during the night, or ten drops of McMunn's elixir of opium, to be repeated once or twice if needed. Water, iced if preferred, is given freely, and lemonade, not too sweet, is allowed, but not to conflict with the taking of the milk. Antipyretics, like antipyrin, antifebrin, acetanilid, phenacetin, and even quinin (for its antipyretic effects), are absolutely forbidden. Stimulation I reserve for necessity, as indicated by marked nervousness, a rapid and feeble pulse, and for the stage of convalescence. In both instances whiskey is preferred, care being taken to secure a good quality. Of heart-tonics strophanthus is given rather a preference, and I at times resort to hypodermatic injections of strychnin. I have never used the cold baths of Brand; at the utmost, sponging with tepid water seems to be sufficient, though not often employed.

I believe that great care must be taken in feeding a patient in the stage of convalescence. I think it is well to keep him on the milk-diet indicated, increasing, however, the amount if needed, for a week, after the temperature has come to the normal. I then begin to feed very gradually, preferring animal to starchy diet.

It will be seen that the methods employed are quite different from those advocated by others. The strict adherence to a milk-diet is, of course, nothing new, and as far back as 1866 we find Dr. Cotting, of Roxbury, Massachusetts, reporting in the London *Lancet* three hundred and seven cases of typhoid fever treated without drugs of any kind and a mortality of only 10 per cent.

Prof. Osler in his recent publication says: "Milk is the staple article of diet, of which from three to four pints are given in the twenty-four hours." This is about the amount I have used. Dr. Hutchinson says: "Milk as an article of diet is unquestionably to be preferred to all others in typhoid fever."

The administration of turpentine was advocated by the late Prof. George B. Wood and indorsed by Dr. Hutchinson, though the dose employed was greatly in excess of that found in the turpentine-mixture.

For the treatment as a whole, though not in every detail, I am indebted to my colleague, Dr. Edmund J. A. Rogers, of Denver, who, in common with a few of the practitioners there, has used it with great success for a number of years.

In conclusion, my apology for the presentation of an article of this class must be found in the wording of Article I of the Constitution of this Association, which reads: "This Association has for its object the advance of scientific and practical medicine," and it is for the purpose of recording the results of practical observation rather than of scientific investigation that I have dared to detain you thus long.

Dr. Lewellys F. Barker, who has been Fellow in Anatomy at Johns Hopkins University, has been advanced to the position of Associate in Anatomy. He remains also Assistant Resident Pathologist to the Johns Hopkins Hospital.

THE MANAGEMENT OF FACE-PRESENTATION.[1]

BY EDWARD P. DAVIS, A.M., M.D.,
OF PHILADELPHIA;
PROFESSOR OF OBSTETRICS AND DISEASES OF INFANCY IN THE PHILADELPHIA POLYCLINIC; CLINICAL PROFESSOR OF OBSTETRICS IN JEFFERSON MEDICAL COLLEGE; CLINICAL PROFESSOR OF DISEASES OF CHILDREN IN THE WOMAN'S MEDICAL COLLEGE, ETC.

THE frequency of face-presentation in gestation is variously estimated at 1 in 130 confinements, by German observers; 1 in 276, by French; and 1 in 292, by British obstetricians. A hint, I think, may be taken from these statistics as to the methods of obstetric diagnosis employed in the leading maternities of the world. It is quite possible that the greater frequency with which this abnormality is said to occur among German patients is not to be construed into a belief that German women have more face-presentations in labor than do British women, but that owing to the practice of palpation and auscultation before labor, German obstetricians more often diagnosticate the abnormality than do English and French physicians. The importance of early diagnosis of this complication is indicated by the success of spontaneous labor in these cases, and the mortality that attends labor requiring instrumental aid.

In a recent interesting paper by von Weiss,[2] forty-six cases are narrated of spontaneous delivery attended by no mortality. Zeller, in forty cases terminating spontaneously, lost no mothers and but two children. While these statements are not exhaustive as to the advantage of spontaneous delivery, the fact remains that such a termination of labor in face-presentation is most desirable. Methods best adapted to secure this result must be based upon early diagnosis, and hence the importance of perfecting the knowledge and practice of palpation.

The treatment best adapted to secure spontaneous labor in face-presentations consists in retaining the membranes unbroken until the time of spontaneous rupture; of sustaining the patient's strength and conserving her energies by suitable feeding, stimulation, and anodynes; and in placing the patient in such a posture as to favor the rotation of the chin anteriorly. When the face looks toward the left side of the mother's pelvis, she should lie upon the left side, her thighs flexed, and the uterus brought as nearly as possible with its long axis corresponding to the axis of her body during labor-pains. Should the fetal face look toward the right side of her pelvis she should lie upon her right side. The relation of cause and effect that has been found to exist between obliquity of the uterus in the mother's abdomen, and face-presentation, renders the maintenance of the uterus in a favorable posture during this complication a matter of considerable moment. It is quite possible in such cases for a face-presentation to be spontaneously changed into an occipital one, and for the occiput even to rotate spontaneously to the front, if these precautions are observed. The administration of such substances as tend to maintain efficient uterine contractions is certainly indicated in these cases before the membranes rupture. As soon as dilatation is complete, the obstetrician is to choose between radical interference by version, or an effort by the methods of Baudelocque and Schatz to correct the face-presentation by converting it into an occipital one. His choice in this decision should depend upon the size and shape of the mother's pelvis, the comparative size of the fetal head, and the condition of the pelvic floor. When no disproportion exists between the head and the pelvis, and when the pelvic floor, although elastic and resistant, offers no undue obstacle to the mechanism of labor, it is certainly proper to allow the head, under good labor-pains and with good extension, to come down upon the pelvic floor in face-presentation, and thus an opportunity be given for the mechanism of labor to proceed spontaneously. When, however, there is a disproportion between the head and the pelvis, as evidenced by pelvic proportions less than the average, ascertained by pelvimetry, or a large fetal head, as ascertained by palpation and a thorough vaginal examination under an anesthetic, the case becomes quite different.

The results of forcible delivery in face-presentation under these conditions are anything but satisfactory and encouraging. The literature of the subject abounds in illustrations of difficult deliveries by forceps, craniotomy, and, in some cases, by version, in which the life of the child has been lost and the mother seriously injured. In the light of our present knowledge the duty of the obstetrician lies in completely changing the presentation, if the pelvis be roomy, by podalic version under anesthesia by chloroform, or in so enlarging the pelvis that the mechanism of labor in face-presentation can continue.

Podalic version for face-presentation is familiar as an expedient, and is, in well-selected cases, a prompt and efficient method of treatment. Symphysiotomy is a procedure of too recent date to occupy an established place in these cases in the resources of obstetric art.[1] My reasons for considering this a rational procedure are are as follows: Personal observation in four symphysiotomies done for disproportion between the head and the pelvis has led me to remark the decided increase of the oblique diameters

[1] Read before the American Gynecological Society, Washington, May, 1894.

[2] Archiv f. Gynäkologie, 1893. No. 25.

[1] Under date of June 13th, Dr. R. P. Harris writes me, that he knows of no case of face-presentation in which symphysiotomy was performed to rectify the position.

of the pelvis that follows the separation of the pubic joint. In three of the four cases, the fetal head presented in an occipito-posterior position; in two cases the right occipito-posterior, in one the left. In one of these cases the head presented by the right parietal bone before the pelvis was opened. Remembering the observation by many obstetricians that face-presentations are often developed out of occipito-posterior positions, it seems to me rational that any surgical procedure which should enlarge the oblique diameters of the pelvis, and which naturally favors the descent of the occiput in the arc of the pelvic curve lying between the sacro-iliac joint and the spine of the pubes, would afford rectification of this abnormal presentation. The three cases of occipito-posterior position following symphysiotomy were readily delivered without injury to mother or child.

Obstetricians are familiar with the facility with which faulty presentations of the head and shoulders may be remedied when two conditions are present: first, complete anesthesia of the mother; and second, a pelvis of good size in its oblique diameters. Reasoning from my experience in the cases cited, these conditions are present after symphysiotomy; and were the spontaneous progress of labor in this presentation to fail, I should much prefer, if the pelvis were of good size and the head not impacted, to perform podalic version; or, if the head were impacted, and disproportion existed between the head and the pelvis sufficient to occasion difficulty in labor, the face-presentation persisting, I should hope for a favorable result from symphysiotomy, converting the face-presentation into a vertex-presentation, and delivering the occiput in the manner most easily available after the pubic joint had been opened.

MEDICAL PROGRESS.

Hydatid Cyst in the Neck of a Child.—SMITH (*New Zealand Medical Journal*, vol. vii, No. 2, p. 88) has reported the case of a girl, four and one-half years old, who presented a tense, elastic swelling, as large as an orange, obviously containing fluid, situated beneath the angle of the jaw on the right side, and completely filling the middle triangle of the neck. The skin over the tumor was smooth and non-adherent, and presented no indication of inflammation. The formation was believed to be a "cold" glandular abscess, but an exploratory incision proved the diagnosis to be incorrect. Accordingly an incision was made and the tumor was found to be encapsulated and to contain fluid. Spread out over its deep attachment were the thinned and barely recognizable fibers of the posterior division of the sterno-mastoid muscle. Posteriorly, the tumor was intimately adherent to the sheath of the common carotid artery, displacing to one side the omo-hyoid muscle. Above, it penetrated behind the angle of the jaw and beneath a portion of the parotid gland. In front, it was adherent to the fibers of the sterno-hyoid and sterno-thyroid muscles. Several nerves, including the descendens noni and the hypoglossal, were dissected from the posterior surface of the cyst and all veins were divided between two pairs of pressure-forceps. The only vessel requiring ligation was a branch of the superior thyroid artery. The intimate relations of the tumor rendered its dissection difficult and laborious. On incising the cyst-wall, which was very thick and quite characteristic, it was found to contain clear fluid and a number of smaller cysts, microscopic examination of the contents of which disclosed the presence of hooklets. The patient made an uninterrupted recovery and was dismissed in a fortnight.

Paralysis Agitans without Tremor.—At a recent meeting of the New York Neurological Society, Dr. Frederick Peterson presented a wheelwright, sixty years old, who displayed characteristic mask-like rigidity of the face, with the attitude of paralysis agitans, the stooping shoulders, bent back, crooked elbows and knees. The hand and fingers were held in the characteristic position, but there was no tremor anywhere in extremities or head. The voice had the monotony and something of the festination of the speech of paralysis agitans. There was at times a sort of propulsion in walking.

THERAPEUTIC NOTES.

The Mechanical Treatment of Constipation.—As the result of an elaborate study, based upon a large experience, MARINEL (*Journal de Médecine de Chirurgie et de Pharmacologie*, 1894, tome iii, fasc. 1, 2, p. 1) concludes that the mechanical treatment of constipation constitutes a therapeutic measure acting with great energy upon the circulation, the respiration, and the general nutrition. It brings about a modification of the abdominal circulation, and causes the disappearance of certain conditions of passive congestion, notably those encountered in cases of abdominal plethora. Under its action both the volume and the force of the muscles is increased. It is the best curative agent in the treatment of constipation dependent upon paresis or paralysis of the muscular system of central nervous origin, and also when the constipation is dependent upon hypesthesia or anesthesia of the intestinal mucous membrane of local origin. It is contra-indicated when constipation is due to acute inflammatory lesions or to new-growths.

For Whooping-Cough.—

R.—Sulphonal . . . . . gr. j.
Creasoti . . . . . ♏ij.
Syrup. tolu. } . . . . . āā f ℥ij.
Aquæ }

S.—Two teaspoonfuls every two hours.

Practitioner.

For Lead-poisoning PEROU (*Lancet*, No. 3690, p. 1277) recommends sodium monosulphite in doses of six grains daily. By this means speedy relief from colic is obtained, and the elimination of the lead is also hastened. The agent is besides an efficient prophylactic and its use is unattended with danger.

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SATURDAY, JULY 14, 1894.

HYPNOTISM AND CRIME.

IT has long been apparent that hypnotism was to have sooner or later its medico-legal aspects. When EYRAUD, the strangler of Paris, committed his foul crime he used as a sexual decoy a young woman named BOMPARD. The victim was taken by EYRAUD *en flagrante delicto* with BOMPARD, and so between the two he was neatly strangled. At the trial the astonishing claim was made that BOMPARD had been hypnotized by EYRAUD, to be his accomplice, and this claim was pressed in court to such purpose that the prisoner—probably because she was a woman—was merely imprisoned instead of being guillotined. Specialists in hypnotism (for there are such specialists in France) urged that the process in BOMPARD's case had been by *suggestion;* and a critical outside world exclaimed that almost all evil had been by suggestion ever since the first séance between EVE and the serpent.

It is interesting to note now the appearance of an ambitious treatise by CROCQ[1] on *Hypnotism and Crime*, in which this author opposes the theory of an hypnotic influence in the case of BOMPARD, and proceeds to work out in his own way both a theory and its application for this somewhat abstruse subject. After an admirable historic survey, CROCQ defines hypnotism as a "particular state" developed under the influence of the concentration of all the intellectual faculties upon one point. This hypnotic state is inseparable from an initial hypnotic sleep, which may manifest itself as well in healthy as in unhealthy or hysterical subjects. It presents various stages, all allied to a somnambuloid state. In this particular mental state suggestibility is a marked feature, *i. e.*, the subject may be led to commit automatically a variety of acts, including criminal deeds, without always retaining a distinct recollection of them after returning to the norm.

It will be seen at once that this is a more critical and exact statement than that of the school of Nancy, which in BOMPARD's case defined hypnotism to be practically identical with suggestion. It is one thing to say that suggestion is hypnotism, but a vastly different thing to say that hypnotism is a special state in which suggestion may act with increased force. The first proposition is untenable, because practically it reduces all influence of mind upon mind, hence most of education and much of morals, to the level of a psychosis; the second is scientific, because it affirms merely that in a special psychosis, *i. e.*, the hypnotic state, suggestion has a pathologic significance. So far we think the statement of CROCQ is exact and the theory valid. The exceptions that we take to this clever and intellectual French (or, to be accurate, Belgian) treatise have reference to some refinements of definition and to some of the applications of the theory in special cases.

CROCQ is inclined to draw too fine a distinction between "hypnosis" and some of the well recognized psychoses—hysteria, for example. We demur to this, especially when the author claims that hypnotism can exert an influence upon perfectly healthy minds, unless he is willing to include the various grades of hysteria within the limits of perfect health, which is doubtful. We think that the genuine hysterical state is closely analogous to, if not identical with, a condition of hypnosis. We see in hysteria that kind of hypnosis known as double consciousness, with contraction of the field of consciousness and extreme suggestibility. Wherein does this differ from hypnotism? In nothing, except that one is a condition, the other a method; one is inherent, the other induced; one is natural, the other artificial—vain distinctions, from the critical standpoint.

[1] "L'Hypnotisme et le Crime." Par le Dr. Crocq, Fils. Bruxelles: Henri Lamertin, Editeur. 1894

The practical part of CROCQ's book lies in its application. Crimes are considered *seriatim*. Rape, theft, the substitution of infants, false testimony, murder, and suicide are the chief among these. The quality of this part of the book cannot be judged by an isolated quotation, but one case may be cited as illustrating the author's acumen and naïveté. A young woman, who was hysterical and somnambulistic, left PITRE's service at Bordeaux, "absolutely and surely a virgin." She was accompanied by another hysteric. They soon encountered two gentlemen, who took them to breakfast. Hysteric number one was embraced by one of the gentlemen, in spite of the fact that she became violently angry. She defended herself; she even *threatened* to cry out. But it was useless. Her suitor hypnotized her; she lost consciousness, and "*Neuf mois après ce jour la jeune fille accouchait d'un enfant à terme.*" This is a clear and logical conclusion. The simplicity of the tale is exceeded only by the simplicity of the mind that finds in it the evidence of a psychosis.

All of CROCQ's examples are not of the same sort as this, and some have in them more evidence of the mental state that is now such a favorite object of study in Paris. When, however, we think of one of our average American courts or juries devoting itself to a conscientious study of this book we experience a hope that the future translator will edit carefully the illustrative cases. The ordinary American juryman would not put faith in a virgin "absolutely pure," who picked up a strange man on the street and held with him a salacious "hypnotic" séance in a neighboring saloon. The verdict, we fear, would not sound well to ears polite.

It may be for the modern Athenians to take the lead in this new province of medical jurisprudence; and until we see how they manage these things in France we shall rest content with the admirable light from M. CROCQ's book.

EDITORIAL COMMENTS.

Fever without Pyrexia.—We have on previous occasions called attention to the apparent paradox of the occurrence of febrile conditions without elevation of temperature. In the course of a recent clinical lecture, TEISSIER (*Semaine Médicale*, No. 25; *Wiener med. Presse*, 1894, No. 23, p. 893) presented a case of pneumonia attended with a subnormal temperature, and made some interesting comments. He pointed out that the temperature may pursue a similar course in undoubted cases of scarlatina, as well as in cases of typhoid fever and influenza. He also made reference to two cases of typical malarial fever attended with subnormal temperature. These were not cases of pernicious malaria of algid type, but were intermittents of moderate intensity, and in which quinin brought the temperature to the normal. Several explanations of this anomalous occurrence have been offered. One of these makes it dependent upon the varying reaction of the thermotaxic centers to varying degrees of virulence of the infecting organisms, a slight degree inducing hyperthermia and an intense degree hypothermia. The inadequacy of this explanation is evident from the fact that it is not always the gravest cases that are attended with hypothermia, and *vice versa*. Rather more plausible is the explanation that pathogenic microorganisms give rise to the production of substances that cause elevation and of others that cause depression of temperature. Finally, it is possible that the hypothermia is due to the accumulation in the body, from failure of elimination, of excrementitious products by reason of hereditary tendencies or of renal inadequacy. The action of quinin in causing elevation of abnormally low temperature is to be ascribed to its vaso-constrictor action, thus preventing undue radiation of heat. Among other measures to be adopted is the stimulation of the cutaneous and renal activity. All in all, the subject is a most interesting and suggestive one. It would seem as though we would have to modify, or at least qualify, the current conception and definition of the febrile process. The problem here propounded is but one of many for the solution of which we must look to chemic physiology.

The Judicial Council.—"Our esteemed contemporary, the Philadelphia MEDICAL NEWS, states that the question of the 'conduct of *The Journal*' was referred to the Judicial Council and has not yet been decided by them.

"At the last meeting of the Association, the question of the action of the management of *The Journal* in publishing certain advertisements was considered by the Judicial Council, and after a full hearing in the matter, the Council decided to leave it as heretofore in the hands of the Trustees."—*The Journal of the American Medical Association*, July 7, 1894.

Our cotemporary is characteristically inexact. Its insertion of the words "by them" after the word "decided" alters the meaning of our statement. We said that "the question of the conduct of *The Journal* is not yet decided"; and that "for the present discussion may well be suspended." We repeat the statement.

We also said that we were not yet informed as to the action taken by the Judicial Council on the points submitted to the Council by the MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA, and by the resolution of DR. EDWARD JACKSON referred at San Francisco. Our cotemporary but partially enlightens us. Until the full text of the decision is published, we cannot assume that our cotemporary correctly interprets it, seeing that our cotemporary sometimes makes errors of interpretation in other matters; nor can we comment upon the decision whether or not our cotemporary is correct in its interpretation thereof, until the reasons therefor are before us. We await the full text with much interest and trust it will be promptly made public.

Protective Inoculations against Cholera.—The success of the method of inoculation devised and practised by M.

Haffkine as a means of protection against cholera is being put to a practical test in India. Within a year or thereabouts some 25,000 persons have been already thus inoculated, but hitherto the crucial experiment of exposure to an epidemic of the disease had not been made. It is now authoritatively reported that in a community of two hundred inhabitants near Calcutta, in which cholera broke out, and of whom one hundred and sixteen submitted to the inoculations, ten persons, none of whom had been inoculated, were attacked and seven died. Of a family consisting of eighteen persons in which a fatal case of cholera occurred, eleven submitted to inoculation. When cholera again broke out in the same house at a later date, four persons were attacked, none of whom had been inoculated, and three died. In another instance four of six members of a family were inoculated several months ago; recently when cholera appeared one of the two uninoculated was attacked, while all of the inoculated escaped. In a family of eleven, five were vaccinated; one of the six not inoculated was attacked. Six of a family of nine were inoculated; one of the three not inoculated was attacked. In all instances those inoculated escaped. The number of cases thus far treated it will be admitted is too small to formulate final conclusions upon, but the results are, to say the least, encouraging and the hope will be universal that they may be abundantly confirmed by more extended observations.

Milk-inspection.—The practical advantages of an intelligent and systematic inspection of milk for domestic use are admirably illustrated by the report of the Inspector of Milk of the city of Boston, who announces a distinct improvement in the quality of the milk served to families as a result of the vigilant enforcement of the inspection-laws. The fines imposed for failure to conform to the standard established were more than sufficient to pay the expense of the inspections. Two things, however, are absolutely essential for successful results in this connection: (1) the enactment of practical and intelligent legislation, and (2) its faithful and rigorous execution.

REVIEWS.

The Healing of Rodent Cancer by Electricity. By J. Inglis Parsons, M.D., M.R.C.S., M.R.C.P. (Lond.), etc. Small 8vo, pp. 82. London: John Bale & Sons, 1893.

The title of this little book would be more correct if the word "destruction" were substituted for "healing." For the author distinctly says (p. 10): "My aim has been to adjust the strength of the electric current so as to kill the malignant cells, yet not to injure the healthy cells beyond recovery." When the morbid structures have been completely extirpated, whether by the knife, by caustics, or by electricity, healing may be expected to take place as in an ordinary simple ulcer.

After a discussion of the pathology and clinical characters of the disease (based, we judge, upon a communication by Mr. Jackson Clarke, on "Parasitic Micro-organisms in Cancer," in vol xliv of the *Transactions of the Pathological Society of London*), a very good "outline of elementary principles for the benefit of those who have not studied electricity" is given. The advantages of this agent are next expounded, and then the author's method of using it is explained. Finally, the details of four cases are presented. So far as appears, these comprise the whole of the author's experience in this direction.

Very possibly a surgeon unfamiliar with the employment of electricity, if called upon to treat a patient with rodent carcinoma, might find some assistance in these pages.

The Technique of Post-mortem Examination. By Ludvig Hektoen, M.D., Pathologist to the Cook County Hospital, Chicago; Professor of Pathologic Anatomy in the College of Physicians and Surgeons of Chicago. With 41 illustrations. 8vo, pp. viii, 172. Chicago: W. T. Keener & Co., 1894.

In this little book Dr. Hektoen reflects the good pathologic work that he is doing in Chicago. Perhaps the greatest defect of the American medical curriculum has been in the department of practical pathology, and it is gratifying to notice a growing tendency to improvement in this direction. The fault lies in some degree in custom and education, for post-mortem examinations are far less common in the United States than they should be. The work of the Coroner's office in most cities is not calculated to invite the admiration of the earnest pathologist, either in its execution or in its results, and we take this occasion to express the hope that the future has better things in store for scientific medicine. Dr. Hektoen has provided us with an excellent guide in post-mortem examinations, which we can heartily commend to both students and medical men. Every student should be familiar with this technique, not only from reading, but also from observation and practical experience.

The Microscope and Microscopical Methods. By Simon Henry Gage, Associate Professor of Anatomy, Histology, and Embryology in Cornell University. Fifth edition; rewritten, greatly enlarged, and illustrated by 103 figures in the text. Part I. The Microscope and Histology. Pp. 165. Ithaca, N. Y.: Comstock Publishing Co., 1894.

This new edition of a most useful book has been enlarged by the addition of a new chapter on photo-micrography and allied matters. The number of illustrations has also been considerably increased. Their distribution in the text is an advantage over grouping a number together. We need not repeat the words of commendation it gave us pleasure to express in reviewing the third edition (The News, April 30, 1892, p. 502). The book remains a most practical and intelligent guide for the beginner, who so often finds difficulty in becoming well grounded. The work bears the impress of the laboratory, and it is largely on this account that it commends itself. We await with much interest the appearance of the second part of the work, which, it is announced, is in preparation and may be expected in the course of two years.

Prof. Madelung has been appointed Professor of Surgery in the University of Strassburg, in succession to the late Prof. Lücke.

SOCIETY PROCEEDINGS.

AMERICAN PEDIATRIC SOCIETY.

Sixth Annual Meeting, held at Washington, D. C., May 29, 30, 31, and June 1, 1894.

First Day—May 29th.

The meeting was called to order by the First Vice-President, Dr. Forchheimer, of Cincinnati.

Dr. B. K. Rachford, of Newport, Kentucky, read a paper entitled "The Influence of Venous Congestion on the Spinal Reflex Centers." He maintained that three important changes in the blood bear an etiologic relation to the neuroses of childhood, viz.: (1) the presence of toxins; (2) simple anemia, acute or chronic; (3) venous congestion, acute or chronic. These do not exist as separate etiologic conditions, but as factors of the complex blood-condition that has much to do in producing the excitability associated with the chronic anemias of childhood. He called attention to the fact that toxic products may produce nervous symptoms, and may therefore be etiologically important in the neuroses of childhood. There are other toxins in the body besides those of bacterial origin. Paraxanthin is a poisonous leukomaïn of the uric-acid group, and is an etiologic factor in a group of nervous symptoms that has heretofore been ascribed to uric acid. Dr. Rachford starved and bled a number of rabbits into a condition of profound malnutrition, and was led to suspect that the blood-changes in scrofula, malaria, rheumatism, and other blood-diseases might not be simply the result of anemia, but that the blood might also contain effete and poisonous products that might also help to keep the nervous system in a state of chronic irritability. This view had been confirmed by ligation of the abdominal vena cava in the rabbit. This experiment had shown that a most exaggerated reflex irritability of the spinal cord might be thus produced, but that the reflex irritability did not begin until the end of the second week after the operation, and that from this time on for a period of six or eight weeks, it continued to increase. Too much stress is not to be laid on this as indicating excitability of the spinal cord, as it might have been due to the changed condition of the muscles, and nerves, and cells, and not to the state of the cord. The same results were obtained in the rabbit by ligature of the abdominal aorta. The reflex phenomena produced by starvation were very insignificant when compared with those produced by venous congestion or arterial anemia. It seems fair to conclude, therefore, that venous congestion and arterial anemia do not act solely by malnutrition, but that there are additional factors, and that these are to be found in the effete and poisonous products of metabolism kept in contact with the nervous system instead of being eliminated. It seems probable that a similar explanation might be applied to the development of chorea and other nervous affections in children in the sequence of endocarditis and pericarditis.

Dr. T. M. Rotch, of Boston, said that from a clinical standpoint he was thoroughly in harmony with the views expressed. Almost every clinical observer must have noticed the relation between a feeble circulation and the existence of nervous disorders.

Dr. Augustus Caillé, of New York City, read a paper on "Tonsillotomy followed by Diphtheria and Croup." He reported the case of a boy, four years old, who had been brought to him for the removal of hypertrophied tonsils. Adenoid vegetations were found on digital examination, and the gums were somewhat swollen from caries of the molar teeth. At the request of the parents, who lived at some distance from New York, Dr. Caillé decided to operate at once, without carrying out his usual prophylactic treatment. Both tonsils were removed with a disinfected tonsillotome. The parents were instructed to use Labarraque's solution. The boy was also given internally potassium chlorate every hour, as he was unable or unwilling to gargle his throat. The next day he was violently sick. The stumps of both tonsils were covered with pseudo-membrane, and there was vomiting and cerebral symptoms. A culture was made from the pseudo-membrane and from the carious teeth, and this showed Loeffler bacilli and streptococci—a mixed infection. The boy was given a spray of mercuric-chlorid solution, to be applied to the mouth and pharynx every half-hour. He was also given internally minute doses of mercuric chlorid. The voice became somewhat husky. On the next morning a small streak of diphtheric deposit had appeared on the posterior pharyngeal wall, and a croupy cough was well marked, while the epiglottis was highly congested. Twelve hours later, the posterior surface of the epiglottis was covered by a thin deposit, and the laryngeal stenosis had increased. Intubation was performed on the following morning. The internal administration of mercuric chlorid was discontinued, but a spray of a saturated solution of boric acid was continued. There was a purulent discharge from the tube, and this was removed. The pseudo-membrane deposited on the tonsillar pharynx remained visible a few days longer. The boy ultimately recovered, and three weeks afterward the adenoid vegetations were removed from the pharynx.

Dr. A. Jacobi, of New York City, said that for twenty years he has been teaching the importance of not operating during the prevalence of diphtheria in a community, and especially in cases in which the tonsils are to be removed. Hundreds of times had he seen the wound of an exsected tonsil covered with a thick pseudo-membrane, and in many instances this had been followed by general diphtheria.

Dr. H. Koplik, of New York City, expressed surprise at the large number of tonsils that harbored the Loeffler bacilli in the very depths of the lacunæ. Children with large tonsils are very prone to attacks of lacunar amygdalitis. Virulent diphtheria-bacilli were found in the depths of the lacunæ—not on the surface. By making a culture from the tonsils previous to doing any operation upon them, one can, after the lapse of forty-eight hours, tell positively whether diphtheria-bacilli are present or absent. Diphtheria does not usually develop when no operation is performed on the tonsils, because as long as the diphtheria-bacilli remain in the lacunæ they are bathed in the lymph which exudes into the lacunæ, so that they are under the influence of leukocytes, and their virulence is diminished. Non-virulent bacilli replace the virulent form after the bacilli have remained in the tonsil several weeks.

Dr. Dillon Brown, of New York City, agreed as to

the importance of using antiseptic lotions both before and after naso-pharyngeal operations; in certain cases, however, it is difficult to carry out this precaution. Under such circumstances the use of antiseptic vapors, such as the fumes of sublimed calomel, is to be advised.

DR. F. HUBER, of New York City, read a paper entitled "Congenital Constipation." He said that beside constipation from other causes, there is a congenital variety dating from the first hours of life, and dependent upon the normal anatomy of the colon. The alvine evacuations are dry and insufficient, the watery elements having been absorbed in the reduplication of the colon. Dr. Huber reported the case of a boy, five weeks old, who from birth had suffered from constipation and cramps. The child was healthy in appearance, but evidently suffering great pain. He was straining, kicking, and crying. He had vomited for two days; the abdomen was swollen and tympanitic, and there was an indistinct, elongated swelling to be felt across the abdomen, two inches above the level of the umbilicus. His temperature was 102° F. By a process of elimination and exclusion, a diagnosis was made of acute intestinal obstruction from birth, with impaction of feces in the reduplication of the sigmoid flexure. In many cases the affection is trivial, but in others it is very serious, and might even jeopardize life. The ascending and transverse colon being very short in the fetus and the newborn, and the descending colon very long in proportion, the latter is crowded down into a narrow pelvis, and thrown into a number of curvatures instead of into one sigmoid flexure. The intestinal contents are therefore retarded, the fluid absorbed, and the feces, becoming hard and dry, give rise to obstruction. The treatment consists in distending the lower bowel with fluid, whereby the reduplications are gradually unfolded from below, and the patency of the gut is restored. High rectal injections should be given, and it might be necessary to continue this treatment for years before the proper relation has been established between the colon and the sigmoid flexure. Crying or any increase in the abdominal pressure should be carefully avoided.

DR. W. L. STOWELL, of New York City, said that by a persistent use of ox-gall and sweet oil, and sometimes turpentine, when hard scybalous masses are present, either in infants or adults, he had always been able to move the bowels in these cases.

DR. FRUITNIGHT said that as many of these cases of constipation are due to an unusual dryness of the feces, the free administration of water should not be neglected, in order to favor the solubility of the alvine contents.

DR. J. C. WILSON, of Philadelphia, read a paper entitled "A Case of Malignant Measles," which is to appear in a future number of THE NEWS.

DR. FORCHHEIMER requested that in the discussion the frequency of second attacks of measles be considered.

DR. ROTCH placed himself on record as believing that measles could occur several times in the same individual.

DR. FRUITNIGHT said that he had seen measles three times in the same person, occurring between the second and fourteenth years.

DR. STOWELL said that in a large dispensary practice he had seen a great many cases of measles duplicated.

DR. FORCHHEIMER stated that he had found the occurrence of second attacks of measles in the same person very common, and it was not uncommon to have a third attack, not to say anything about German measles occurring in the intervals between these attacks.

DR. SEIBERT said that in a very extensive dispensary practice he had never had the opportunity of making the diagnosis twice in the same child. While believing, therefore, that it was possible for the disease to occur twice in the same individual, he thought it was not nearly of so frequent occurrence as some would have us believe.

DR. WILSON, in closing the discussion, said that he had had associated with him in consultaton in the case he had reported, Drs. Pepper and Da Costa, and they had all agreed as to the diagnosis.

SECOND DAY—MAY 30TH.

As part of the discussion on "The Etiology, Prevention, and Treatment of Rickets," DR. IRVING M. SNOW, of Buffalo, read a paper entitled "The Influence of Race, Especially the Italian Race." He said that in the community in which he practised, rickets was six times more prevalent among Italians than among the other classes, and that the disease prevailed but to a moderate extent among the children of the English, Germans, Irish, and Poles. He thought that the reason for this was to be found in the change of environment, which was so great for the Italian, who in his native land had lived in a mild, clear climate, with plenty of sunshine, and out of doors for most of the year—a climate very different from that of Buffalo. The change had been too sudden and too severe. The mean winter temperature of Buffalo is 27.15°, and that of Naples 48°. In spring, the mean temperature of Buffalo is 43°, that of Naples 58°. It is certain that rickets is seldom developed among the natives of Southern Italy, Egypt, and India, and this fact is probably accounted for by the out-of-door life of the people and the bright warm sunshine of the climate.

DR. GEORGE N. ACKER, of Washington, D. C., read a paper on "The Influence of the Negro Race." He referred to the many peculiarities of the negro race and the differences between it and the white race. He said that since the war the conditions affecting the negro had been entirely changed. The slaves had food conducive to health and were warmly clad; they lived in healthful houses and were cared for when sick. Now the negroes have to work for themselves; they are shiftless and intemperate; they breathe impure air; wear insufficient clothing, and live in total disregard of all sanitary rules. All this has necessarily exerted a deleterious effect upon their offspring. The race is undergoing serious decay. The diagnosis of rickets can easily be made in the negro if search be made for the usual evidences of the disease. The bone-lesions often appear late and are not always found, so that some severe cases are overlooked. A most important etiologic factor is heredity. The parents are as a rule tuberculous or syphilitic. In Dr. Acker's experience it is common for children with the tuberculous or syphilitic diathesis to develop severe rickets. On account of their unsanitary surroundings and the lack of care given them, the health of their offspring was liable to become considerably impaired. If breast-fed, they failed to receive nourishment at regular hours, as most of the mothers were in service, and other and improper food was given. The negro infant is weaned at an early age; it is not uncommon to find

infants of a few months old fed on condensed milk, oatmeal, beef-tea, bread and butter, and tea. Between the sixth and eighteenth months of life pulmonary disorders are very common, and it is at this time of life that rickets is most frequently observed. Disease of the respiratory organs lowers the vitality, and in this way might be considered an etiologic factor in causing rickets. The pathologic changes found in rickets are about the same in negroes as in other races. Enlargement of the wrist-joint is more prominent; the swelling of the ribs occurs earlier and is more constant; the thoracic grooving is marked in all cases. The head is rectangular, but this is not a constant feature. In some cases the fontanels close early and the skull is firmly ossified. Although Dr. Acker had made careful search for cranio-tabes, his experience has led him to think it quite rare among the negroes. As negroes have less susceptible nervous systems than whites, they are less liable to nervous diseases. When these rickety children are placed in more favorable surroundings the disease usually yields quite readily to treatment.

DR. C. W. TOWNSEND, of Boston, reported "A Case of Congenital Rickets." The child was seen at the Boston Lying-in Hospital, and was born of healthy parents who had no syphilitic history. A previous child had been born to these people and up to the age of three years had shown no signs of rickets. The parents were wretchedly poor; the child was a male, premature, and weighed seven pounds. His head was sixteen inches in circumference; the sutures were widely open; there was a large area of cranio-tabes; Wormian bones were present; there was considerable cyanosis, which might have been partially due to an open ductus arteriosus. No murmur was heard over the heart. There was the characteristic rickety rosary; the abdomen was large; the spleen could not be felt; the extremities showed evidences of rickets, enlargement of the epiphyses being easily noticeable. The bones of the forearm were bent posteriorly; the femur was curved outward and forward. These curvatures could only be explained by the action of the muscles on the soft bone *in utero*. There were also fractures due to the extreme brittleness of the bones, a late phase in the rickety process, and therefore they must have been produced by muscular action within the uterus. The child was artificially fed, and died on the ninth day. There was no autopsy.

DR. J. P. CROZER GRIFFITH, of Philadelphia, remarked that he had not been able to observe any difference in the causation of rickets in the colored and in the white race. It seemed to him reasonable to suppose that at least the colored children of Philadelphia should have become acclimated by this time.

DR. L. EMMETT HOLT, of New York, said that the most severe cases of rickets seen in New York are among the negroes and Italians. The causes of rickets are many and far-reaching. The predisposition of these two races seemed to be unquestioned, and he has been led to about the same conclusions as those reached by Dr. Snow.

DR. J. HENRY FRUITNIGHT, of New York City, said that it would seem that the nations of Continental Europe are more liable to rickets than are the inhabitants of the British Islands. He also mentioned a case of congenital rickets which he had seen, thus making four cases on record in this country.

DR. A. SEIBERT, of New York City, called attention to the fact that in by far the majority of cases of rickets he had found cranio-tabes since he had made it a practice to especially look for this condition. He said that it should be especially looked for if there is any history of eclampsia.

DR. JOSEPH E. WINTERS, of New York City, said that climate has an influence in producing rickets, but that it is not climate alone, but the way in which it influenced assimilation and digestion. Every one of these cases, notwithstanding the change of climate, could be cured with proper food. With reference to tuberculosis and rickets, Dr. Acker had stated that tuberculosis and rickets were associated conditions. Dr. Winters said he had yet to see a tuberculous child become rickety. He thought that if a child suffering from tuberculosis were subjected to the conditions that induce rickets, the child would die before rickets had developed.

DR. H. KOPLIK, of New York City, said with reference to the value of drugs in the treatment of rickets, that he favored the administration of phosphorus in the daily dose of $\frac{1}{120}$ of a grain, and he thought this treatment led to very satisfactory results if persistently kept up.

DR. ACKER, in closing the discussion, expressed his opinion that if placed under proper surroundings the negro would be cured of rickets without resort to any drugs.

DR. A. SEIBERT, of New York City, read a paper entitled "An Aid to the Sterilization of Milk in Artificial Infant-feeding." He called attention to a method of cleaning milk before sterilization, thus enabling everyone to remove the gross filth from the milk, and at the same time diminish the number of bacteria contained therein to a remarkable degree. He had made a number of experiments that showed that seven-eighths of the bacteria were removed from a given bulk of milk by filtering through absorbent cotton. He had also experimented to ascertain whether the amount of cream or the specific gravity of the milk was changed, and he had found that the milk was not altered by the filtration through a one-half-inch layer of compressed absorbent cotton, and also that the quantity of sugar was not diminished. At his request, Dr. Otto Kiliani, of New York City, had made some control bacteriologic experiments. These experiments showed beyond a doubt that filtering the milk reduced its germinating capacity considerably, and that the purifying quality of the cotton was decidedly intensified by moistening it before filtration. By this process Dr. Kiliani had been able to reduce the bacteria to one-twentieth of their original number. A quart of milk could be filtered in from twelve to fifteen minutes. All the apparatus necessary is an ordinary funnel in the bottom of which the absorbent cotton is packed.

DR. KILIANI said that his share of the work had only consisted in performing the control-experiments alluded to. As a proof of the care with which these were conducted, he mentioned the fact that out of nineteen experiments not a single culture had been obtained as a result of infection from the hands or from the air.

DR. SEIBERT said that in presenting this method for purifying milk he did not wish to be understood as opposing sterilization in the ordinary manner. On the contrary, he would now sterilize more than ever, because

he knew that he could give his patients more completely sterilized milk than he had hitherto been able to do.

Dr. J. Henry Fruitnight, of New York City, read a paper entitled "Infantile Scurvy, Especially its Differential Diagnosis." He said that since the writings of Barlow and Northrup, and others, infantile scurvy had been much more frequently diagnosticated than before. As scurvy is a disease resulting from faulty nutrition, it could be safely assumed that more cases are encountered now than when breast-feeding was more general. He described in detail a typical case of infantile scurvy. When this child first came under observation it was in a deplorable condition. There was a fusiform swelling of the left ankle and a swelling of the thigh on the same side, both of which were very painful; the temperature was 100°; the pulse feeble and very rapid; the gums dusky-purple; the tongue and cheeks were ulcerated, and the whole mouth was inflamed and emitted a fetid odor. The slightest touch induced bleeding from the gums. There were petechial spots over the back and limbs. The right eye was closed by ecchymosis; the conjunctiva was involved in this effusion, and the swelling extended far down on the cheek. There was considerable blood in the stools, but the child did not have diarrhea. It was extremely anemic. Although it was evident that the prognosis was not very encouraging, treatment was instituted, and the child recovered completely at the end of six or seven weeks. The chief point in treatment was the change of food, Pasteurized milk being ordered, together with orange-juice and citrate of iron. In recovering, the patient first improved in the leg, then in the mouth and gums, and the hemorrhagic spots were the last to disappear. Dr. Fruitnight believed that the condition of malnutrition present in scorbutus could not but exert a special influence on the bloodvessels. The most important cases of scurvy had not been rickety, although the disease had been formerly diagnosticated as acute rickets. It was an error to suppose that scurvy never occurred in breast-fed children. The chief points on which the diagnosis was made were the swelling and tenderness of the ends of the femur, the swollen and spongy condition of the gums, and the rapid and complete cure that followed a resort to antiscorbutic treatment. The condition might be mistaken for acute rheumatism. In scurvy the joints are white and tense, but not puffy; in rheumatism the joints are red and puffy, and the tenderness is localized in certain spots. In scurvy there is no local elevation of temperature; in rheumatism there is such an increase in the local temperature. The diagnosis is, of course, more difficult when only poorly-marked joint-symptoms are present, and here the therapeutic test should be resorted to to decide the question of diagnosis. It had been said that this would expose the patients to endocarditis by delaying the treatment if the case were one of rheumatism; but if the symptoms do not quickly abate there is sufficient reason for believing the case to be one of rheumatism, and the appropriate treatment for this disease could then be immediately adopted. The pseudo-paralyses found in infantile scurvy require to be differentiated from other infantile paralyses. They could only occur from bone-lesions in scurvy, and these should be looked for. Scurvy might be looked upon as the result of a faulty nutrition leading to the deviation of the normal constitution of the blood, probably as a result of deficient alkalinity. It is also associated with changes in the bloodvessels. The three important symptoms are the bone-lesions, the spongy condition of the gums, and the petechiæ. The symptoms appear first in the lower extremities, then in the gums, and lastly the hemorrhagic extravasations appear. The disease usually runs a favorable course under a proper dietetic treatment.

Third Day—May 31st.

Dr. W. S. Christopher, of Chicago, read a paper entitled "The Nutritional Element in the Causation of Neuroses." He said that the following positive factors are present in all neuroses: (1) heredity; (2) anemia; (3) some local condition acting reflexly as the immediate exciting cause. Clinically, the nutritive quality of the blood can only be determined by an estimation of the quantity of hemoglobin and the number of blood-corpuscles present in a given quantity of blood. Such an examination, however, does not furnish very satisfactory evidence. A neurosis was described as a group of phenomena resulting from such abnormal action of tissue or tissues as might be dependent upon one or more of the following conditions: (1) abnormal chemic constitution of the tissues; (2) abnormal chemic composition of the nutritive elements supplying the tissues; and (3) derangement of the nerves. Each individual requires not only a certain quantity of food but also a certain variety, in order to meet the various chemic requirements of the human organism. The proteids, carbohydrates, and fats do not supply the needs entirely. Aside from salts and water, there are other things that probably act as food. The nutritional antiscorbutic element has as yet escaped detection by the chemist. It is needed in comparatively small quantities, and it might be withheld without detriment for a considerable time. If food were sufficient in kind but deficient in quantity, the result would be complete starvation. When the food is deficient in variety, the result would be incomplete or partial starvation. This partial starvation is an important factor in the production of neuroses. It is most commonly present in infants in the form of fat starvation, which was natural enough when one remembered the very large consumption of commercial infant-foods at the present time. Proteid starvation is much less frequent. In the causation of changes in the tissues there were other factors besides interference with the food-supply, *e. g.*, abnormal nerve-impulses, direct toxic action, and pathologic conditions affecting the organism, such as syphilis and infectious diseases. In conclusion, it was stated that neuroses are always dependent upon abnormal chemic constitution of the tissues, and that such a condition might result from one of three factors, viz: (1) heredity; (2) deficient constructive metabolism, which might follow from insufficient food-supply; (3) deficient destructive metabolism.

Dr. Rotch, of Boston, stated that infants vary greatly in their individual requirements in regard to the quantity of fat needed by the organism.

Dr. William P. Northrup, of New York City, reported "A Case of Cyanosis," and demonstrated the lesions found in the heart. The patient was a boy, four-and-a-half years old, who, although apparently well nourished,

had pale cheeks and dusky lips and fingers. The digits were knobbed and the belly prominent. Three or four times each week he suffered from very severe attacks of dyspnea, and he also had more or less dyspnea after meals. Palpation showed a fine wave at the left third interspace; there was a soft purring thrill over the base of the heart; the apex-beat was half an inch outside of the left nipple-line; cardiac dulness extended from the right sternal border to the left nipple; there was no dulness to the right of the sternum. A loud, harsh, systolic murmur was heard along the left margin of the sternum, and was distinctly localized at the second left interspace at its junction with the third rib. This murmur was not transmitted to the left or along the aorta. The second sound of the heart was scarcely audible. At the autopsy the right ventricle was found to be markedly hypertrophied, tilting the heart to the left. The apex of the heart was to the outside of the nipple-line, and no part of this organ extended to the right of the sternum. The aorta was distended; the pulmonary artery was unusually small; the ductus arteriosus was impervious; the foramen ovale was practically closed; the left ventricle was normal; the walls of the right ventricle were thicker than those of the left; the septum was incomplete at the auricular extremity; the conus arteriosus was constricted. A probe could not be easily passed from the pulmonary artery into the right ventricle because the pulmonary orifice was at right angles to the axis of the artery, and was very small. The case was one of early fetal endocarditis, giving rise to constriction of the conus arteriosus. This endocarditis must have occurred early in development, before the septum was completed, so that Nature could elect the very best point to effect a compensatory circulation. The aorta, receiving a direct stream of blood from both ventricles, was distended; the pulmonary artery, receiving very little blood, remained small.

Dr. T. M. Roch, the Chairman of the Committee on the Nomenclature of Diseases of the Mouth, then presented the report of the committee. He said that there should be uniformity in the designation of diseases, so that a disease would be called by the same name wherever it was written or spoken about, and that the nomenclature offered by the committee was intended to aid in the accomplishing of this object. The term stomatitis was taken as a basis, and from this four divisions were made: (1) stomatitis catarrhalis; (2) stomatitis herpetica or aphthosa; (3) stomatitis ulcerosa; and (4) stomatitis mycetogenetica. These were again subdivided; for example, stomatitis catarrhalis was subdivided into (1) stomatitis secondary to the exanthemata; and (2) traumatic stomatitis. The report of the committee was accepted by the Society.

The Committee on the Nomenclature of the Diseases of the Gastro-Enteric Tract then presented its report. This consisted of a schematic classification of these diseases. There were two grand divisions—gastric and enteric—and the chief subdivisions were (1) developmental; (2) functional; (3) organic. There were also many subdivisions of each one of these grand divisions. The report was accepted after some discussion.

Dr. Dillon Brown, of New York City, then read a paper entitled "The Early Diagnosis of Pott's Disease of the Spine in Children." He divided the symptoms into three groups: (1) Those common to all cases of tuberculosis, such as peculiar night-cries and evening rise of temperature; (2) the peculiar attitude and rigidity of the spine; (3) the symptoms secondary to interference with the spinal cord and nerves, such as paralysis and dyspnea. In all cases of curvature of the spine the deformity is rounded and not angular. Psoas contraction is almost pathognomonic of spinal caries.

Fourth Day—June 1st.

Dr. William P. Northrup, of New York City, read a preliminary paper on "Infantile Myxedema," as illustrated by two cases which he reported. The first case occurred in a female child, nine years old, four healthy children having been born previously. The parents were Irish and American, and were strong and healthy. The subject of this report had practically ceased developing at the age of nine months, and when seen, at the age of nine years, was mentally no older than when nine months old. The head was large; the color peculiar, yellowish, and tallow-like; the hair thin; the bridge of the nose characteristically flattened and the nostrils tilted back; the lower lids diffusely swollen; the cheeks pendulous; the lips thick and anemic; the tongue swollen and protruding; the gums filthy and suppurating; the breath emitting a peculiarly characteristic and offensive odor; the soles of the feet dry and parchment-like. The thyroid gland did not seem to be especially enlarged. The only words the child would say were "Dada;" and it would sit for hours at a time tied in a chair. There were some evidences of rickets. For four days after the child was admitted to the hospital no treatment was instituted, in order that the natural course of the temperature might be observed. It was found that the rectal temperature varied between 97.5° and 99.5°. A reliable glycerin extract of the sheep's thyroid was then administered, the doses being so regulated as to keep the rectal temperature just below 100°. Four minims of the extract formed the highest daily dose given. On the fourth day the temperature overstepped the limit, and the thyroid extract was stopped for a short time. Two days later, the breath had become less offensive. While under observation the child had an attack of acute pneumonia, and this necessitated stopping the treatment for a while. The tongue swelled while the thyroid extract was suspended, and again diminished in size on resumption of the treatment. After eighty days of treatment, it was found that the tongue was smaller; the countenance brighter; that the child was better in appearance and more good-natured, and that there was no excessive perspiration. There had, however, been no increase in height and no improvement in the condition of the feet or in the child's speech.

The second case occurred in a boy of twelve years, who presented nothing like so typical an appearance. He rarely spoke, and was very slow even in answering such a question as "What is your name?" He was still under treatment, but so far had not shown any striking improvement.

Dr. William Osler, of Baltimore, read a paper on the "Successful Treatment of a Case of Infantile Myxedema with the Thyroid Extract." The patient was three years of age, in appearance a typical cretin, and had been under treatment for more than a year. There was no

enlargement of the thyroid gland. At first the child took an amount corresponding to about one-fourth of a gland in each twenty-four hours. When seen about one month ago it was evident that a remarkable improvement had taken place. The cretinoid aspect had been entirely lost; the flesh was firm and the nutrition much improved; and the mental condition and speech had undergone the most remarkable improvement. Dr. Osler reported a second case, in a cretin nineteen years of age, in which the treatment had been carried out, although not so systematically, and with not very decided benefit.

Dr. W. L. Carr, of New York City, spoke of a case he had seen in which very marked improvement in the mental condition and general nutrition had followed the use of the thyroid extract.

Dr. Forchheimer, of Cincinnati, spoke of a nineteen-year old cretin in whom treatment with the thyroid extract produced such a condition of excitement, almost maniacal, that it was necessary to stop the thyroid extract.

Dr. L. Emmet Holt, of New York City, read a paper entitled "Acute Pyelitis in Infancy." He reported the case of a male child, eighteen months old, that suddenly became ill, and presented a temperature of 103 5°. There was marked pyrexia for about five days, and examination of the urine showed it to contain a large quantity of pus, but no casts. The pus diminished slowly in quantity, and disappeared at the end of about three weeks. Twenty months later, examination showed that the child was in all respects well, and the parents stated that there had been no return of the urinary symptoms.

A second case was a female child, eight months old, in whom the illness began with a chill and a sudden rise of temperature to 105°. The existence of pneumonia was positively excluded. In this case also there was considerable pus in the urine, and it disappeared slowly under the administration of small doses of potassium citrate. This case likewise ran a course of about three weeks, and sixteen months later it was found that the patient had remained free from all urinary symptoms.

In a third case, after the initial chill and the rise of temperature, there was an irregularly remittent temperature which did not yield, notwithstanding the administration of exceedingly large doses of quinin. The spleen was not enlarged. On the fourth day, there being some slight straining and pain on urination, a specimen of urine was obtained, and examination showed it to be strongly acid and purulent. This case extended over a period of about three months, and presented a number of unusual features. It was possible that there was a malarial element in this case.

Dr. Seibert said he thought the first case appeared to be one of cystitis. He would like to know upon what Dr. Holt based the differential diagnosis in this case between purulent cystitis and pyelitis; and also on what he based his diagnosis in the other case between purulent inflammation of the kidneys and purulent pyelitis.

Dr. Osler said that he thought malaria could be excluded when there was no enlargement of the spleen and the symptoms did not yield to quinin.

Dr. Forchheimer said that he had frequently seen cases of low-grade intermittent fever which did not yield to quinin, and he had also found that in cases of malaria the spleen was not always enlarged.

Dr. Holt said that the absence of mucus, the fact that the urine was always acid, and that there was no evidence of vulvo-vaginitis seemed sufficient to exclude cystitis in the first case. The second case might have been malarial. He agreed with Dr. Osler regarding the points in the diagnosis of malaria.

Dr. George N. Acker, of Washington, D. C., exhibited a "mirror writer" in the person of a colored boy ten years of age, whose writing was reversed, so that it could be read when reflected in a mirror. This boy was a premature child and was very delicate during his early infancy. He had many convulsions, which became much more frequent and severe after a fall on the head when he was about two or three years of age. He had also had a persistent chorea. He now wrote with equal dexterity with both hands. There was a history of insanity on the mother's side, and the father was markedly neurotic.

NEWS ITEMS.

The Association of American Medical Colleges, at its recent meeting at San Francisco

Resolved, That colleges, members of this Association, shall require of all matriculates an examination as follows: 1. An English composition in the handwriting of the applicant of not less than two hundred words; said composition to include construction, punctuation, and spelling. 2. Arithmetic—Fundamental Rules, Common and Decimal Fractions, and Ratio and Proportion. 3. Algebra, through Quadratics. 4. Physics, Elementary —Gage. 5. Latin—An amount equal to one year's study, as indicated in Harkness' Latin Reader.

(This resolution does not apply to students exempt from the entrance examination, as per Section 2, Article III.)

Resolved, That the following classes of students be recognized as entitled to apply for advanced standing in colleges members of this body: *a*. Such graduates of recognized colleges and universities as have completed the prescribed courses in Chemistry and Biology therein. *b*. Graduates and matriculates of colleges of Homeopathy. *c*. Graduates and matriculates of colleges of Eclectic Medicine. *d*. Graduates and matriculates of colleges of Dentistry requiring two or more courses of lectures before conferring the degree of D.D.S. *e*. Graduates and matriculates of colleges of Pharmacy. *f*. Graduates and matriculates of colleges of Veterinary Medicine.

It is provided, however, that the foregoing class of students be required to comply with the provisions of the entrance examination, and to prove their fitness to advanced standing by an individual examination upon each branch below the class he or she may desire to enter.

Resolved, That students graduating in 1899 or subsequent classes be required to pursue the study of medicine four years and to have attended four annual courses of lectures of not less than six months' duration each.

The American Academy of Medicine will hold its nineteenth annual meeting at Jefferson, N. H., on August 29 and 30, 1894. The following papers may be expected:

"The Retrogressives: What Produces Them; Classification," by Bayard Holmes, Chicago, Ill. "Importance of the Study of the Subject to the Profession," by Chas. McIntire, Easton, Pa. "The Provident Dispensary in England," by H. Webster Jones, London, England. Title to be announced, by J. A. Spalding, Portland, Me. "Assistance and Care for the Blind," by Charles A. Oliver, Philadelphia. "Prevention of Blindness," by Benjamin Lee, Philadelphia. "Present Status of Legislation for the Prevention of Blindness from Infantile Ophthalmia," by Lucien Howe, Buffalo. "Senile Dementia and Testamentary Capacity," by J. N. Whittaker, Cincinnati. Title to be announced, by Gershom H. Hill, Independence, Ia. "What Agencies Conspire to Check Development in the Minds of Children?" by J. Madison Taylor, Philadelphia. "The Medical Service of the U. S. Pension-Bureau," by P. S. Conner, Cincinnati. "Physical Training for Delinquents," by Helen C. Putnam, Providence, R. I. "Government Commission instead of State License," by J. D. Kelly, New Haven, Conn. "The Relation of Food-Adulterations to the Dependent Classes," by Henry Leffmann, Philadelphia. Title to be announced, by G. M. Gould, Philadelphia. President's Address. Title to be announced, by F. H. Gerrish, Portland, Me.

Arrangements have been made for a special excursion from New York and Boston and return at reduced rates A choice is offered of an eleven days' excursion, including most of the expenses, or of returning immediately at the close of the meeting, and is open to any one desirous of attending the meeting, whether members of the Academy or not. Any additional information about the meeting or the excursion may be obtained from the Secretary of the Academy, Dr. Charles McIntire, Easton, Pa.

The American Public Health Association will hold its twenty-second annual meeting at Montreal, Canada, September 25, 26, 27, 28, 1894. The following topics have been selected for consideration: "The Pollution of Water-supplies." "The Disposal of Garbage and Refuse." "Animal Diseases and Animal Food." "The Nomenclature of Diseases and Forms of Statistics." "Protective Inoculations in Infectious Diseases." "National Health Legislation." "The Cause and Prevention of Diphtheria." "Causes and Prevention of Infant Mortality." "The Restriction and Prevention of Tuberculosis." "Car Sanitation." "The Prevention of the Spread of Yellow Fever."

Papers are invited upon the following additional subjects: "On the Education of the Young in the Principles of Hygiene." "Private Destruction of Household Garbage and Refuse." "Disinfection of Dwellings after Infectious Diseases." "Inspection of School-children with reference to Eyesight."

The Cholera and the Plague.—It is reported that during the first three days of July there were twenty-one cases of cholera in St. Petersburg, six of which terminated fatally. In the twenty-four hours ending at noon on July 4th, eighteen new cases and five deaths were reported. Eighteen cases and four deaths were reported in Cronstadt between July 1st and 4th. A fatal disease bearing strong resemblance to the plague prevailing at Hong Kong is said to be prevalent in numerous Russian provinces, and has also made its appearance in St. Petersburg, Moscow, and other places. From Brussels it is reported that three cases of cholera with one death occurred at Liége on July 5th. Three cases with one death are reported from Angleur, near Liége, and one fatal case from Jeysille.

Gussenbauer, of Prague, has been placed in charge of the second surgical clinic of the University of Vienna. Czerny, of Heidelberg, after having agreed to accept the succession to Billroth, subsequently declined the appointment through an unfortunate misunderstanding.

The American Electro-Therapeutic Association will hold its fourth annual meeting in New York, September 25th, 26th, and 27th, at the Academy of Medicine. Members of the medical profession are cordially invited to attend.

Southern Medical Review is the name of a new "monthly journal of medicine and surgery," published at Houston, Tex., and edited by Dr. N. J. Phenix.

Dr. V. P. Gibney has been elected Professor of Clinical Surgery in the College of Physicians and Surgeons of New York City.

Dr. B. Meade Bolton has been made Associate in Bacteriology in the Johns Hopkins University.

Addendum.—In the case reported by Dr. J. S. Carpenter in The Medical News of June 23, 1894, p. 700, it should have been stated that the dose of morphin and atropin injected hypodermatically and followed by alarming symptoms was gr. ss. and gr. $\frac{1}{75}$ respectively.

Books and Pamphlets Received.

Utilisation du Courant de la Rue par un Noveau Moteur-dynamo combiné à une Installation électrique de Cabinet. Par A.-W. de Roaldès, M.D. Extrait des Archives d'Électricité Médicale expérimentales et cliniques.

Cases of Alarming Epistaxis of Grippal Origin, and Dangers of Post-nasal Plugging. By A. W. de Roaldès, M.D. Reprinted from the Medical Record, 1893.

Fibrous Bodies in the Tunica Vaginalis Testis; with a Report of Three Cases. By Thomas S. K. Morton, M.D. Reprinted from the Transactions of the Philadelphia County Medical Society, 1894.

Ueber den therapeutischen Werth des Salols bei der Cholera-Diärrhea. Von M. Wolkowitsch. Sonderabdruck aus Therapeutische Monatshefte, 1893.

The Treatment of Burns. By Thomas S. K. Morton, M.D. Reprinted from the Philadelphia Polyclinic, 1893.

Tumors of the Peripheral Nerves; with Report of a Case of Sarcoma of the Sciatic. By Thomas S. K. Morton, M.D. Pamphlet. 1883.

Early Human Embryos and the Mode of their Preservation. By Franklin P. Mall, M.D. Reprinted from the Johns Hopkins Hospital Bulletin, 1893.

The Surgery of the Hand. By Robert Abbe, M.D. Reprinted from the New York Medical Journal, 1894.

Description of a New Optometer for Correction of Astigmatism by Distant Tests. By Carl Weiland, M.D. Reprinted from the Annals of Ophthalmology and Otology, 1894.

Prevention of Disease. By J. G. Porteous, M.D. Pamphlet. Read before the New York State Medical Association, October 10, 1893.

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ORIGINAL ARTICLES.

A CASE OF MALIGNANT MEASLES.[1]

BY J. C. WILSON, M.D.,
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House-epidemic of measles; four cases, of which one was hemorrhagic; at the time of the convalescence of the last of this group, rapidly developing illness of an adult male member of the household, with petechiæ, collapse, violent fever of reaction, continuing stupor passing into coma; death upon the fifth day.—The family in which the case about to be described occurred, in addition to the servants, all of whom escaped, consisted of five persons; the father, thirty-seven years of age, who at sixteen had typical measles at the same time with his sister; the mother, who never had measles; and three children, aged respectively eleven, nine, and seven years.

On March 9th the second child, a girl, had measles, the rash appearing upon the fourth day and the attack running a mild course without complications.

On March 14th the youngest child, a boy, developed the disease, the rash appearing upon the fourth day. The attack proved a very severe one, the temperature on several occasions reaching 105.6° F., and petechiæ in great abundance developing on the second day after the appearance of the exanthem, especially upon the extremities. This case terminated in complete recovery.

The third case was that of the mother, the attack beginning on the 19th, the rash appearing on the fifth day. The attack was severe and attended with pronounced catarrhal symptoms and great prostration.

The rash was first observed upon the oldest child, a girl, on the 25th, the case being remarkably mild and running a short course.

J. H. G., the father of the children, thirty-seven years of age, was a muscular, well-developed man, of medium stature and excellent general health. He had been until early adult life a stammerer, but had by persistent effort overcome this defect of speech. He had also suffered from early childhood from hay-fever, and having failed to obtain permanent relief from local treatment of the nose was in the habit of spending the months of August and September in camp in the forests of Northern New York or Maine. His paternal grandfather died at an advanced age of diabetes; his father at the age of sixty-one of pernicious anemia. Otherwise the father's family was healthy and long-lived. On the mother's side there was a history of gout and migraine. The patient was one of five children, of whom two died in infancy and two survive.

On April 1st the patient appeared to be in perfect health, and incidentally observed that he had never felt better in his life. In the course of the following night he awoke and felt uncomfortable, remarking subsequently that he thought he had an attack of indigestion. On the morning of April 2d he felt indisposed and had a temperature of 100° F. Nevertheless he went out and attended to business engagements. He returned in the middle of the day, complaining of headache, his axillary temperature being 103.5° F. There had been no chill or chilly sensations, no nausea or vomiting. The headache was at this time diffuse and severe. There was neither rigidity nor tenderness upon pressure of the muscles of the back of the neck. The pulse was of fair volume, 100 per minute. There was a slight redness of the anterior half-arches, but no pain on swallowing. Other catarrhal symptoms were absent. At 7 P.M the temperature had fallen to 102.4° F. The headache was less intense; the condition of the throat unchanged; the tongue was slightly coated; the pulse 112, of moderate volume and tension; the face pale. The man now expressed some uneasiness about his condition, and stated that he had never before felt so sick.

It was reported that during the course of the night the patient had twice gotten out of bed for a drink of water. On April 3d, at 8 o'clock, the man was stupid, and could be roused only with difficulty. The surface was cool, bathed in sweat, and the skin was covered with petechiæ. The hemorrhagic spots varied in diameter from 1 to 8 or 10 mm. They were mostly ovoid or circular in outline, but many of the larger ones were quite irregular. They were very abundant and nearly uniformly scattered over the trunk and thighs, but were more thick-set upon the arms and legs, and were especially massed at the wrists, on the neck, and about the temples. A number were visible upon the palms of the hands. In several groups a distinctly crescentic arrangement was noted. There was no hemorrhage from mucous surfaces. The temperature was 100.2° F.

At 11 o'clock the man's condition had become desperate. The temperature had fallen to 99° F.; the skin was cold and clammy, shriveled and inelastic. The pulse was 120, but so feeble as to be counted with difficulty. Upon being roused the patient made monosyllabic replies, and put out his tongue, but had to be again aroused to retract it. Under treatment, which consisted of hypodermatic injections of strychnin, atropin, tincture of digitalis and brandy, the application of external heat, oxygen-inhalations, sinapisms, reaction took place,

[1] Read at the Annual Meeting of the American Pediatric Society at Washington, May 30, 1894.

but stupor bordering upon coma continued. The tongue was dry and glazed. The patient when roused asked for water, which he swallowed with eagerness. Weak milk-punch and liquid beef-peptonoids were from time to time administered. The bowels were constipated, and the urine not being voided catheterization became necessary, and was with some difficulty effected by Dr. Keen. It was thought best to leave a catheter *in situ*. There was no vomiting and no rigidity of the neck. The pupils were of medium size, equal and reactive to light.

At 4 P.M. the temperature was 97.2° F., the pulse 108, the respirations 32.

At 8.30 P.M. the temperature was 98° F., the pulse 108, the respirations 30. The condition of the patient was otherwise unchanged.

During the night, from April 3d to 4th, the temperature rose steadily. At 6 A.M. it was 102.6° F.; at 8.30 A. M., 104° F. It remained high, reaching 105.2° F. at 6 P.M.

During the day a small number of maculo-papules of a faint, dusty-pink color were observed upon the wrists, the side of the face and neck, but not elsewhere. Slight conjunctivitis was present, more marked in the right eye. There was no sneezing and no cough. There was some impairment of resonance, with feeble vesicular murmur and small mucous râles at the bases posteriorly, these signs being more marked upon the right side. The first sound of the heart was feeble. There was occasional delirium of a quiet kind, with snatches of song and low whistling. Upon being roused and interrogated the patient replied that he felt very well. There was slight muscular rigidity, so that the limbs somewhat resisted flexion. The reflexes were preserved, but not increased. During catheterization there was noticed for the first time a rhythmic spasm of the muscles of the right thigh and leg. Blood was taken from a large petechia upon the thorax, by Dr. A. C. Abbott, for microscopic examination and culture.

Toward evening the delirium ceased, and the condition was one of stupor, from which the patient could with difficulty be momentarily aroused. The head was slightly retracted, but could be flexed upon the chest and moved from side to side without difficulty and without eliciting indications of pain. The condition of the pupils was unchanged Risus sardonicus and subsultus tendinum were almost constant.

The urine, diminished in amount, passed away through the catheter, which was retained in position. It was acid in reaction, of a specific gravity of 1029, and contained a small amount of albumin, but no sugar, and no crystals. Upon the examination of several slides there was discovered a single hyaline cast, slightly granular. The bowels had not been moved. The pulse was from 130 to 140, feeble, irregularly intermittent, difficult to count. The cardiac impulse and the first sound of the heart were feeble. The respirations ranged from 38 to 46.

On April 5th the condition was about the same as it had been. The rhythmic tremors observed the day before during catheterization now recurred from time to time spontaneously, or were provoked by movement of the limbs, arranging the bed-clothes, etc. They sometimes affected the muscles of the right leg; sometimes they were confined to those of the left, and sometimes they affected both lower extremities. The upper extremities had only occasionally shown this phenomenon, and then to a very slight extent. The administration of fractional doses of calomel, followed by an enema, resulted in a copious evacuation of the bowels. The temperature remained high, fluctuating between 103.5° and 105° F. The papular eruption observed the previous day upon the face, neck, and wrists had faded.

Shortly after midnight on April 6th there was a large, loose movement of the bowels. The temperature having risen to 105° F., the pulse being 144, the respirations 46, the patient was placed in a bath at the temperature of the room, cooler water being poured over the head and face. The duration of the bath was ten minutes. At its close there was noted a transient lessening of the stupor. An hour later the temperature had fallen to 101.6° F., and the pulse to 130, while the respiratory frequency remained about the same. For some hours the temperature fluctuated between 102° and 103° F. It rose toward morning to 104° F. The stupor deepened, the breathing became more shallow, the pulse more feeble and frequent. The temperature rose to 105.6° F., and at 9 P. M. death occurred.

Rigor mortis was fully established in the course of two hours, at which time there was general discoloration of the abdomen and thighs. An autopsy was not permitted. No subsequent infection arose in the house or in any attendant or visitor.

The treatment during the first day consisted in the administration of antipyrin, gr. ijss, together with caffein citrate, gr. j, at intervals of an hour and a half or two hours. Some four or five doses in all were taken. On the second day the treatment was directed to the condition of collapse, as already indicated. It consisted principally in the administration of ten-minim doses of tincture of digitalis hypodermatically at intervals of two or three hours, with gr. $\frac{1}{30}$ of strychnin sulphate at like intervals, and gr. $\frac{1}{100}$ of atropin on three occasions, and the free administration of alcohol hypodermatically, the application of external heat, sinapisms, and frictions of the extremities. Inhalations of oxygen were given from time to time. The digitalis had no obvious influence upon the action of the heart or the pulse. On the other hand, the hypodermatic injection of strychnin was usually followed by a temporary increase of cardiac force. The inhalation of oxygen had a remarkable influence, which was repeatedly noted, in slowing and deepening the respiratory movements.

When, in the course of the third day, muscular rigidity, tremor, and risus appeared, the question arose as to whether or not they were produced by

the strychnin. This drug had, however, been given in moderate doses and at considerable intervals. Its employment was nevertheless at once suspended. The symptoms referred to continued until the patient became comatose, and were doubtless due to causes entirely independent of the treatment.

The remarkable influence of the bath in lowering the temperature was not accompanied by other favorable manifestations, except a very transient improvement in the mental condition. The temperature began to rise after a short time, and continued to do so until in the course of a few hours it had reached its former level. The bath was regarded by the patient's friends as an unnecessary hardship, and excited their opposition. Partly for this reason, and partly because it was evident from the beginning that the illness would prove fatal, its administration was not repeated.

Dr. Abbott reported as follows:

"I have examined the blood of Mr. G., both microscopically and by culture-methods. Microscopically nothing of importance was detected, beyond a rather high proportion of polynuclear leukocytes and a relatively low number of other lymphatic elements.

"Neither bacteria nor any other forms of parasites were detected. Efforts at cultivation, made both by the ordinary methods and by special anaërobic methods, resulted negatively in all of ten or twelve tubes. One tube only showed a growth, and this a single colony of the ordinary 'skin-coccus.'"

To make the history complete it is necessary to state that a pet dog had been ill for three weeks with so-called chorea, and was chloroformed about the time the first case of measles occurred in the house. Subsequently members of the patient's family raised the question as to the nature of the dog's illness and as to the possibility of the communication of some obscure virulent infection from the animal.

I wrote to Dr. Leonard Pearson, in regard to the illness of the dog, and received the following reply:

"Your favor is at hand, and I take pleasure in giving you the information that you request in reference to Mr. G.'s dog. I first saw the dog (a small female spaniel, about three years old), Sunday, February 25th. At that time there was well-marked chorea of the hind legs, accompanied by great muscular weakness. The animal was in other respects in a normal condition. The pulse was regular, the temperature 101°, the appetite good, etc. The prognosis was unfavorable, because I know from experience that these cases do not respond readily to treatment, although they do sometimes recover. The animal continued to grow worse until Friday, March 9th, when it died. It never had fever; petechiæ were not present at any time, and the only abnormality, beyond the chorea and resulting weakness, was a slight swelling of the nasal mucous membrane. I last saw the animal Thursday, March 8th. At that time it was completely exhausted, and I advised its destruction, as I had previously done on several occasions, but was told that it had been decided to keep the dog as long as it could eat.

It may be that chorea followed distemper, but I am not at all clear on that point, as there is no history of previous illness, with the exception of a passing indigestion; while distemper is a disease accompanied by great prostration and a catarrhal condition of the mucous membranes, with discharges from most of the natural openings, there was no evidence of infection during the time that I had the dog under observation. Even if the animal had suffered from a malignant attack of distemper, which was not the case, I have no reason to think that a person could become infected from such a source. If it were possible, we would undoubtedly hear of numerous cases among kennel-attendants, who frequently have to nurse a large number of puppies with the distemper. The attendant in the dog-hospital at the University would be especially exposed to this danger, did it exist, but I have never heard of a case of the sort, nor have I ever known of an instance in which it was even suspected."

Apart from the general interest excited by instances of malignant infection, this case is chiefly important from the standpoint of diagnosis. We are familiar with such cases in the common acute infections. There are few practitioners of large experience who have not seen instances of malignant scarlet fever, the nature of which in the absence of characteristic symptoms has been evident in the light of the prevalent local or house-epidemic. Cases of this kind are far from uncommon in small-pox. They have occurred very frequently in cerebro-spinal fever, usually at the outset of epidemics. It is of the cases of this variety of epidemic cerebro-spinal meningitis that the learned Stillé has said, in discussing the futility of treatment, that "the first symptoms of the disease are the first phenomena of death."

Cases of malignant measles occur among children in institutions, especially when there is crowding or the conditions are otherwise unsanitary. They are occasionally observed in camps and garrisons, and the malignity of measles when first introduced among a people previously free from it was shown in the great epidemic in the Fiji Islands in 1875.

Harwood,[1] who observed this epidemic, states that the type of the disease was adynamic, and that in this respect it differed markedly from measles among the Anglo-Saxon races. Vital depression was early and marked. Death followed rapidly the first appearance of the symptoms.

William Squire, who published a more circumstantial account of this great epidemic, estimated

[1] S. S. Harwood: Pacific Medical and Surgical Journal, 1875, Vol. vi, pp. 351–355.

that from one-fourth to one-fifth of the native population, or more than 20,000 persons, perished in the course of four months from this disease. Squire[1] says: "One need invoke no special susceptibility of race nor peculiarity of constitution to explain this great mortality." He ascribes it to fear, to bad conditions of living, and a want of care—a view not generally accepted, and not sustained by subsequent events.

But malignant measles in general practice and especially among persons living, as in my case, under the most favorable hygienic conditions, is extremely rare. For this reason, and for others that suggest themselves, especially with reference to prophylaxis against a new infection that might have been accidentally introduced, the question of diagnosis became one of great practical importance. The differential diagnosis had to be made between measles on the one hand and (1) typhus, (2) purpura fulminans, (3) cerebro-spinal fever or (4) variola on the other hand.

1. Of *typhus* there could scarcely be a question. Philadelphia has, it is true, at long intervals been visited by limited local epidemics of typhus fever, occurring usually among immigrants and under conditions of poverty and squalor, but there have been no cases reported for a long time, and the patient had had no communication with persons of those classes in which typhus is likely to show itself. He had, moreover, during the month previous to his sickness, spent most of his time in his own house, occasionally going to a country place for exercise, or to two or three offices in the city where he had business.

2. The possibility of the disease being an unusual form of *purpura fulminans* was carefully considered. Against this, however, several important facts are arrayed, namely: the previous excellent health of the patient, his age, the sudden onset of the attack, the pyrexia, the rapid development of a universal petechial rash, which did not increase either in numbers or in size, the absence, although life was prolonged five days, of bleeding from mucous surfaces, and finally, the faint and limited measly rash which appeared upon the third day.

3. *Cerebro-spinal fever.* Certain of the symptoms suggested a sporadic case of cerebro-spinal fever. These were the suddenness of onset, the violent initial headache, early collapse, hemorrhagic eruption, nervous phenomena, as delirium, stupor, tremor, and rigidity, shallow respiration and faint and arrhythmic action of the heart. But vomiting did not occur, painful rigidity of the muscles of the back of the neck was absent, and there were no evidences whatever of meningeal inflammation. Moreover, the rash observed upon the third day acquires in this connection a diagnostic importance of the highest degree. Why should we go out of our way in search of an explanation of the case when there was in the patient's household an infection to which he had been directly and peculiarly exposed for a considerable time?

4. *Smallpox.* The absence of exposure, so far as known, the absence of anything in the rash like a pock, previous, repeated vaccination, good scars, the character of the petechiæ, which nowhere tended to spread, and the fact that no contagion arose subsequently in the house, negative the hypothesis that the nature of the case was variolous.

The direct diagnosis of malignant measles rests upon the exposure, the faint and limited but distinct maculo-papular rash, the crescentic arrangement of the petechiæ and the febrile movement, active at first, interrupted on the morning of the second day by collapse due to overwhelming toxemia, and re-established upon reaction.

Dr. Abbott's examination of the blood yielded, it is true, a negative result, but this fact does not militate against the diagnosis, as negative results have occurred in a large proportion of examinations of the blood in measles, and the positive results of various observers are as yet far from being in accord. Nor can the fact that the patient had measles in his boyhood be urged against this diagnosis, as unquestioned second attacks occasionally occur.

In this group of five cases there were, then, illustrations of the two forms of hemorrhagic measles described by systematic writers. First, the benign variety, which showed itself in the son. In him the attack was severe but typical in its evolution, the rash showing itself on the fourth day with its usual characteristics, and only becoming hemorrhagic a day or two later, the hemorrhage being confined to the papules and outlasting them for a considerable period, recovery taking place without other unfavorable manifestations. And second, the malignant or fulminant form, in which an overwhelming infection, acting at once upon the nervous system and the blood, deranges the familiar sequence of the phenomena of the disease and replaces the ordinary symptoms by the morbid manifestations of a toxemia of the gravest kind.

This latter form is well described by Louis Starr[1] in the following words:

"Malignant, ataxic, or black measles may occur as an epidemic or sporadic affection, but it is usually the former. There is great prostration; the patient is dull and stupid; the pulse is small, feeble, and frequent; the respiratory movements are difficult and rapid; the rectal temperature is high, often reaching 107° or 108° F., while the hands and feet

[1] Transactions Epidemiological Society, 1880, vol. iv, p. 74 *et seq.*

[1] An American Text-book of Diseases of Children, 1894.

feel cold; the tongue is dry, brown, and thickly coated; epistaxis is often obstinate, and hematuria may occur. The rash appears slowly, imperfectly, and irregularly, assumes a livid, purplish, or blackish hue, and may quickly retrocede; at the same time the skin is thickly mottled with petechiæ. The attack progressing, the pulse becomes so rapid that it can scarcely be counted; there is muscular tremor with muttering delirium, and life terminates in coma or convulsions. After death ecchymoses may be found in the viscera."

In the house-epidemic here described it may be assumed that the infecting principle in all the cases was practically the same. The clinical variations must then be ascribed to constitutional peculiarities and varying powers of resistance in the different individuals attacked.

In this connection it is interesting to note that the grandfather of the patient died of diabetes, the father of pernicious anemia, the patient of malignant measles with rapid breaking down of the blood, and that his son had the benign form of hemorrhagic measles.

THE USE OF METALLIC DISCS AND CYLINDERS IN THE ELECTRIC TREATMENT OF DISEASES OF THE SKIN.

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MANY diseases of the skin are more favorably and more speedily influenced by the application of electricity than by any other method of treatment. It is by no means, however, a matter of indifference in what form the force is employed. Some affections are most distinctly improved by the use of static electricity; in others, amelioration is brought about by faradism or galvanism, as the case may be; while in some instances an alternation of the faradic and galvanic currents has a more beneficial effect than can be obtained from the restricted use of either of the forms.

Many ingenious appliances have been invented by which the force may be most conveniently and advantageously used in affections of different regions of the body. In the treatment of diseases of the skin I am in the habit of using, with much satisfaction, metallic discs and rollers which can be readily attached to the conductors. These electrodes are nickel-plated and have several important advantages in practical work. The use of metallic plates, discs, or cylinders is a cleanly or aseptic means of applying faradism or galvanism to the skin. The metal can always be cleansed by an antiseptic solution immediately after each operation, and can be washed in boiling water.

Metals are not only cleanly, but they furthermore possess a twofold therapeutic application. The first consists in moderate pressure by the operator. The degree of pressure may be easily regulated and constitutes a valuable therapeutic factor in maladies of the skin. In the second place, galvanism, applied with moderate pressure, has a deeper penetrative action upon pigmentary deposits, inflammatory infiltrations, and neoplastic formations.

The discs employed are of circular shape and about three inches in diameter. The cylinders are about five inches in length. These metallic appliances have been made for me by the E. A. Yarnall Company, of Philadelphia.

When the diseased surface is of considerable extent, the cylinder may be rolled to and fro, the pressure being regulated according to the nature of the case. Upon smaller areas the discs may be left in contact until the patient experiences a sensation of warmth in the skin.

Applied by means of metallic plates and rollers, galvanism relieves painful conditions of the skin and anomalies of sensation; it stimulates absorption and has a parasiticidal influence. Applied in the formative stage of acute inflammations it will very often abruptly arrest their progress. This brief statement of the valuable properties of galvanic electricity is suggestive of its various uses in dermatology.

Dermatalgia, or neuralgia of the skin, gives rise in many cases to extreme pain and in some instances it may involve a large area. In the latter event especially, the application of mild galvanic currents by means of the metallic cylinder has a speedy effect in diminishing the suffering. The constitutional effect of the agent will not infrequently prove of avail in permanently removing the condition upon which the distressing manifestation depends. Hyperesthesia and hyperalgesia, so closely related to dermatalgia, both as regards their mode of origin and the sensations to which they give rise, may be successfully treated in the same manner.

Paresthesia, or pruritus, a more common neurosis than those just mentioned, causes, in many instances, suffering scarcely less intense than acute pain. The peculiarly annoying sensations banish sleep, and the frequent loss of rest may even affect the general health. Paresthesia is particularly atrocious when it attacks the orifice of the rectum or vagina. In consequence of scratching, the skin is often thickened, reddened, fissured, or even eczematous. Very commonly the morbid sensations are experienced simultaneously upon a large portion of the general surface or, as frequently happens, they are suddenly transferred from one to another region. These peculiarities present a serious ob-

stacle to the employment of ordinary methods of treatment. One cannot be constantly anointed, mopped with lotions, or lie indefinitely in a bath. Electricity is, in these cases, a powerful means of relief, not only acting upon the peripheral distribution of the nerves, but also in influencing the state of the central nervous system. Its use may be modified in such a way, also, as to stimulate the activity of the alimentary system, upon some fault of which the paresthesia often depends.

In cases of general itching the metallic cylinder may be used, with excellent results, to subject the affected surfaces to the influence of galvanism. When the seat of disease has been thickened as a result of constant irritation, I often employ with success faradism in alternation with galvanism. The use of electricity has a further advantage in these cases. It quiets the central nervous system and predisposes to sleep, so that the patient who has been tossing upon his bed in torment is once more enabled to enjoy peaceful and refreshing slumber.

Other maladies in which itching is a prominent feature are likewise mitigated by the alternate use of the faradic and galvanic currents. As regards this symptom, eczema is notably to be included in the same category. Itching is one of the most constant symptoms of eczema and attends nearly every stage and form of that disease. At times the distress to which this subjective symptom gives rise is almost intolerable. The manifestation is the most severe in the case of nervous subjects. Electricity, moreover, plays a more important rôle in the treatment of eczema than the mere relief of a symptom, however troublesome. In the chronic form of the disease the skin becomes thickened and hard from inflammatory deposits. The inelastic integument is likely to crack, especially in those parts most subjected to motion. The fissures, once produced, are difficult to heal. The alternate application of faradism and galvanism stimulates the absorbent vessels; the infiltration is gradually removed; the fissures then yield to treatment and the surface returns at length to a normal condition.

The smarting, tingling, burning, and itching of urticaria are allayed by the application of galvanism, which will, not infrequently, bring the attack to an end.

The galvanic current, administered through discs or rollers of metal, is a most valuable therapeutic measure in the treatment of psoriasis. The applications may be made daily, and are certainly the most effectual local means at our command for causing resolution of the thickened patches characteristic of the disease. In an affection so notoriously obstinate as psoriasis galvanic electricity deserves to be prized as a valuable form of treatment. At the same time we should not overlook the advantage of making use of proper medicinal methods for counteracting any toxemic condition that may underlie the cutaneous disease. Galvanism is particularly efficacious in those cases in which psoriasis has its origin in some disturbance of the nervous system.

The sorbefacient power of galvanism has been demonstrated in some diseases that are of yet more inveterate and generally incurable character than psoriasis. In scleroderma the integument is thickened and hardened by an actual increase of organized tissue. The connective-tissue elements and the yellow elastic tissue of the corium are hyperplastic, and in some cases the muscular fibers are also increased. No method promises so much relief in such a serious deviation from the normal type of nutrition of the integument as does galvanism. Clinical experience has demonstrated that galvanic electricity is more potent in this fortunately rare disease than any other method of treatment. The inelastic patches of morphea, also, are more amenable to the same applications than to purely medicinal means. The same method may be used with favorable results in the case of several varieties of new formations, such as keloid and fibrous tumors of the skin, hypertrophied scars and angiomata.

Galvanism diminishes active congestion by a stimulant effect upon the vasomotor nerves and consequent contraction of the vessels. For the same reason it may, when employed with judgment and caution, arrest rapidly the course of an acute inflammation. In erythema it overcomes the dilatation and turgescence of the capillaries; the redness of the skin fades and the transudation is absorbed.

The application of mild galvanic currents has an excellent effect in relieving the itching and smarting sensations of dermatitis due to poisoning by rhus toxicodendron and similar plants. The swelling is at the same time reduced. In erysipelas the method is no less useful. Many surgical procedures, some of them quite elaborate, have of late years been proposed and practised with the view of limiting the spread of erysipelas from its point of origin to other parts of the surface. This very desirable object may often be accomplished by the application of a weak galvanic current, and the metallic cylinder furnishes an excellent means by which it may be brought into contact with the surface. The metallic electrode, being placed in connection with the kathode, or negative pole, is moved slowly around the circumference of the erysipelatous patch, the positive pole being held stabile at the center of the lesion. The strength of the current should not exceed 5 or, at most, 10 milliampères.

In cellulitis good results may be obtained by the same method of treatment. If the case is seen sufficiently early the formation of pus will generally

be prevented. In those other painful and severe affections of the skin and subcutaneous cellular tissue, boils and carbuncles, leading to suppuration and necrosis, galvanism, applied in the manner described, notably diminishes and shortens the inflammatory process and, if applied in the formative stage, has even an abortive effect. The constitutional depression produced, especially by carbuncle, is also combated by the use of electricity.

A mild galvanic current, transmitted through the metallic disc placed over the lesions, checks the progress of herpes. The smarting, burning, and pain are alleviated, the spread of the vesicles is arrested and their drying is promoted. This treatment is equally efficacious in herpes zoster. It checks the development of the vesicles and, furthermore, is of marked utility in relieving the lancinating pain that generally accompanies the disease and that sometimes is very resistant to the influence of drugs. As, in the commonest form of herpes zoster —that which occurs upon the side of the chest, in the course of the intercostal nerves—the involved surface may be of considerable length, the metallic cylinder will be preferable to the disc.

Mild galvanization is beneficial in acne. It abbreviates the duration of the lesions and lessens suppuration. It promotes the resolution of acne-papules and softens and removes the hard lesions of acne indurata. Faradism is also of service in acne, affording relief to the itching and reducing the swelling of the skin. In the different forms of acne—rosacea and alopecia—I have frequently employed these two forms of electricity in alternation. Not infrequently I derive more benefit from their alternate application than from the restricted use of either form.

We have in galvanism an effective method of treating seborrhœa oleosa. A slightly exaggerated activity of the sebaceous glands may merely serve to produce a cosmetic defect, which, however, is capable of causing much distress of mind in its subjects. In some cases greasy crusts are formed and the affection gives rise to itching and burning sensations. The transmission of a galvanic current through the metallic disc in contact with the seat of disease affords marked relief to the symptoms and brings about a healthy condition of the glands.

It has been shown that the lesions of lupus vulgaris may be favorably influenced by galvanism, which causes the nodules to undergo resolution and absorption and stimulates the ulcers to repair.

The dilatation of the vessels, the passive congestion, and the tenderness that persist for a long time after the occurrence of frost-bite may be relieved by alternate applications of the faradic and galvanic currents.

The destructive effect of electricity upon micro-organisms has been utilized in the treatment of some of the parasitic diseases of the skin. There is reason to believe that the bactericidal properties of this force are destined to be more generally employed in dermato-therapy than they are at present. Some of the good results produced by its use in acute and suppurative inflammations may be due to its parasiticidal action. Cases of tinea trichophytina and tinea favosa have been cured by galvanism. The force was, however, employed in a different manner from that described in this paper. Solutions of chemic substances having antiparasitic power were driven into the follicles, ducts, and glands of the skin by the action of galvanic electricity, the sponge-electrode being moistened in the solution and pressed firmly upon the skin.

ORIGINAL ADDRESS.

HIGHER MEDICAL EDUCATION AND THE NEED OF ITS ENDOWMENT.[1]

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THE invitation which I received from the Medical Faculty of the Western Reserve University, to deliver an address upon this occasion, carried with it the suggestion that I should speak of higher medical education, and of some of the advantages of liberal endowment of medical education. My choice of subject is in accordance with this suggestion, as well as with my own inclination.

The time has come when the needs of medical education should be brought forcibly before the general public in this country. Medicine can no longer be taught with the simple appliances of former times. The proper teaching of medicine now requires hospitals, many laboratories with an expensive equipment and a large force of teachers, some of whom must be paid enough to enable them to devote their whole time to teaching and investigating. These things require large endowments of money, and cannot be adequately secured simply from the fees of students. If the public desires good physicians it must help to make them.

In this country, for the most part, we cannot look to the State for endowment of medical education, but we must appeal to private beneficence. A few public-spirited and generous men and women have already given practical proof of their appreciation of these facts. With more general and fuller realization of the needs and present condition of medical education, and of the results that can be secured by its liberal endowment, there is every reason to believe that these benefactions will be largely and rapidly increased, and that thereby the condition of medical education in this country shall cease to be a reproach to us. During the last few years our methods and standards of medical teaching have shown remarkable improvement.

[1] An Address delivered at the Graduating Exercises and Fiftieth Anniversary of the Medical Department of the Western Reserve University, February 28, 1894.

What I shall have to say concerning higher medical education will relate to what may be done where there are adequate pecuniary resources outside of the fees of students, rather than to what may be practicable now in this place or generally in this country. The hampered conditions prevailing in most medical schools in this country do not permit the complete realization of the methods and standards of education of which I shall speak. One of the principal aims of this address, however, is to indicate the importance of securing endowments, in order to improve the character of medical education. I do not intend, however, to draw an ideal picture, but only one that is realized in many foreign countries, and which is in measurable distance of accomplishment in several medical schools of this country.

What preparation should a student bring to the study of medicine? It is highly desirable, in my judgment, that he should be liberally educated; that is, he should possess a degree in arts or in science which shall be an index of that knowledge and culture which, apart from any immediate bearing upon professional studies, are recognized as entitling their possessor to be ranked among liberally educated men. Scientific studies have acquired the right to rank with classic studies in affording this liberal culture; but the humanities should have a fair share of attention at this period of education.

The question has been discussed whether or not during the period of collegiate education the student who intends to study medicine should be required to pursue any special subjects, and especially such as bear a direct relation to his future professional studies. The answer to this question seems to me to depend upon the character of collegiate training on the one hand, and of medical training on the other hand. The primary purpose of collegiate education is to furnish a broad basis of mental discipline and liberal culture, independently of direct relation to professional work. Where, as in the old-fashioned colleges in this country, and in the gymnasia and lycées of Germany and France, the student enters college at the age of fifteen or sixteen, and is graduated at nineteen or twenty, it is not necessary or even desirable that the undergraduate student should specialize his work with reference to his future profession. Under these circumstances, which obtain in most foreign universities, at least the first year of medical study is devoted mainly to physics, chemistry and zoölogy, including comparative anatomy.

These are not, however, the conditions which prevail in this country at the present time, where on the one hand the average age of graduation from our best colleges is at least two years later than in Germany and France, and on the other hand, the medical schools do not furnish adequate training in physics, general chemistry, and biology, whereas these sciences are now generally included in the curricula of our colleges. When we consider the fundamental importance of these sciences for the study of medicine, the advanced age of graduation from college, and the special conditions of collegiate and medical education in this country, it seems to me clear that during the period of collegiate study the student intending to study medicine should acquire a fair knowlege of chemistry, physics, and general biology, and to these sciences should be added the study of French and German. Inability to read French and German deprives the physician of personal aquaintance with a large part of the most valuable literature of his profession and makes it impossible for him to keep thoroughly abreast with the progress of medical science and art.

A year's collegiate study, of which practical work in the laboratory should be an important part, is the minimum requirement for such knowledge of physics, chemistry, and biology as should be demanded of medical students upon entrance, and a longer training is desirable. In physics especial attention should be given to mechanical and electric experiments. The student must learn at least the outlines of inorganic chemistry and the elements of organic chemistry, to enable him to study with any degree of intelligence and profit chemic physiology and pathology. In biology he should follow for at least a year a laboratory-course in the structure, life-history, and vital activities of selected types of animal and vegetable life. It is more important that he should acquire certain fundamental concepts concerning the structure and properties of living things, than that he should devote his time to systematic zoölogy. It is impossible to have any adequate understanding of the structure and functions of the human body in health and in disease without a comprehension of the fundamental facts of physics, chemistry, and general biology.

There are certain points which should be clearly understood as regards the requirement that the preliminary education of a medical student should be a liberal one, indicated by a degree in arts or science, and should be made to include a specified amount and kind of knowledge of physics, chemistry, and biology, with a reading knowledge of French and German. The justification for the latter requirement is that, inasmuch as students are kept in college in this country two years longer than in most foreign countries, they should be permitted to pursue during at least the last two years of their course subjects that bear upon the study of medicine, but which, although included in the medical curriculum in foreign universities, are strictly liberal studies, independently of their professional bearings. These sciences preliminary to medical study can be studied and taught better in the college than in the medical school, and, indeed, in foreign universities they are more often pursued by medical students in the philosophic than in the medical faculty. It would be a waste of energy and money to make provision for them in both the medical and the academic departments.

It cannot be truthfully said that the plan indicated need divert the preliminary education from a liberal to a technical and specialized one, for the degree in arts or science will presumably indicate that the student has a liberal education and the special subjects need not be taken up before the last two years of the course. This scheme presupposes that the student will have made up his mind to study medicine in time to include these special subjects in his undergraduate studies. If he has not done so, or if he chooses to exclude them from his collegiate work, he will be obliged to devote at least a year to them after graduation and before beginning the study of medicine. The college-authorities should, however, direct attention at the proper period of the course to the importance of these subjects for those

who intend to study medicine. This plan, moreover, adjusts medical education to existing conditions of collegiate education in this country, without any essential changes in the curriculum of the latter.

The advanced age of graduation from college is a serious embarrassment to higher medical education in this country and has led to the unfortunate result that with the increase in the time required for the study of medicine there has been a falling off in the number of medical students with a college-degree in at least one of our leading medical schools, although it cannot be doubted that the average amount of preliminary education has increased among our medical students.

Various suggestions have been made, especially by the medical faculties of our universities, to remedy this anomalous condition of collegiate education or to adapt it to the needs of medical education. I think that we may assume that the college-course is not likely to be shortened, or that the college will relinquish that part of its development which has made it something between the old college and a university. There is good reason to believe that there are serious defects in our systems of primary and secondary education, and that without lowering the standard of admission better methods of teaching will enable students to enter college at least a year younger than is now the case.

The plan has been adopted in some of our colleges of permitting students to begin their medical studies in the medical department at the beginning of their senior year. This is a plan which, of course, is applicable only when there is a medical school in connection with the college, and involves certain sufficiently apparent difficulties. I think, however, there is much to be said in favor of this arrangement, which permits the student to take up the study of human anatomy, physiology, and physiologic chemistry in his senior year in college, provided he has sufficient preliminary training in the fundamental sciences that have been mentioned. It may, however, be questioned whether the time available for the study of physics, chemistry, and general biology in college is any too long for this purpose, and will permit the addition of human anatomy with dissections, and other subjects that must be a part of the regular medical curriculum. Unless the student has completed the work of one year of the medical course, I do not see the justification of permitting him to shorten by one year the regular medical course because he has a college-degree.

It should be understood that if a medical school requires for admission a year's collegiate training in physics, chemistry, and biology, subjects that are included in the medical curricula of European universities, its period of medical study is, according to European standards, lengthened by one year, the first year being relegated to the collegiate period.

The only medical school in this country in which a liberal degree is required for admission is that of the Johns Hopkins University. Here it is also required, for reasons that have been stated, that the candidate for admission shall be able to read French and German, and shall have had a year's collegiate training with laboratory-work in physics, chemistry, and biology. It is of course impossible for unendowed medical schools to demand anything approaching these conditions for admission. I do not undertake to say that, even were other medical schools so situated that they could demand them, it would be wise for them to do so under present conditions, but it seems to me that there is room in this country for at least a few medical schools with such a standard. Exactly what it is feasible to require as a general standard for admission to medical schools in this country at the present time is a subject which, as already said, I do not consider in this address.

It is true that without a liberal education a man may become a competent physician, and may attain even a high standard of excellence in his profession, but with such education he is better adapted for the study of medicine, he is more likely to succeed in his profession, his social position will be better, and his life will be fuller.

The ultimate and essential aim of medical education is to train persons to treat conditions of disease and injury of the living body. This art, the most difficult and responsible of all human arts, rests upon a foundation of scientific facts relating to the structure and functions of the body in health and in disease. These fundamental facts are comprised in anatomy, physiology, and pathology. Upon the basis of these medical sciences the student is prepared to study the nature of therapeutic agents and their effects upon the body, and to proceed to the study of practical medicine and surgery. The greater part of the time to be devoted to the practical branches must be given to general medicine and surgery, including obstetrics and gynecology, but opportunities must be afforded for acquiring some knowledge of the various specialties. Instruction should be given also in hygiene, legal medicine, and medical history.

To anyone who is at all familiar with the contents, constantly increasing, of these various branches of medical study, it is clear that it is hopeless to attempt to give the medical student a complete knowledge of any one of them. This would require for each subject a period of time at least equal to that available for the study of all.

How long should be the period of undergraduate study in a medical school? In Europe it is nowhere less than four years, and in most European countries it is longer. In Sweden it is nine or ten years, in Spain seven years, in Italy and Holland six years, in Austria, Russia, Portugal, and several universities of Great Britain five years, in Germany four and a half years. In Canada the required period is four years.

According to a statement kindly furnished to me by Dr. John S. Billings, fourteen regular medical schools in the United States either now require, or during the coming year will require, attendance upon four annual courses of lectures in conferring the degree of doctor of medicine. Thirty-seven schools require four years of study, of which one year may be only with a preceptor. Seventy-six require three courses of lectures, and seven require only two courses.

The required period of study in the Medical Department of the Johns Hopkins University, where a full year of collegiate training, with laboratory-work in physics, chemistry, and biology, is required for admisson, is, according to European standards, at least five years.

Four years of undergraduate study in a medical school, each year of study being the usual academic

year of about eight months, are as much as can reasonably be demanded in this country at the present time. This length of time is sufficient, if the student enters with a satisfactory preliminary training, especially if, as is often the case, he supplements the undergraduate course with a year or a year and a half in a hospital, or a year of special post-graduate study.

Only those medical schools that have good laboratory and hospital facilities are warranted in establishing a four years' obligatory course. It would be absurd for some medical schools, with their pathetically meager outfit, to require the student to remain with them four years.

As regards the distribution of subjects in the medical curriculum, the amount of time to be given to each, and the methods of teaching, there is, of course, room for much difference of opinion. I should say that in a four years' course the first two years should be devoted mainly to the fundamental medical sciences, to wit: anatomy, physiology, physiologic chemistry, pathology, including bacteriology, and pharmacology, and that the last two years should be given to practical medicine, surgery, obstetrics, and hygiene, with a limited consideration of the more important specialties. Before entering upon the latter half of the course the student should pass an examination upon the studies of the first two years. The examinations upon both the scientific and the more strictly professional subjects should include practical exercises.

The study of human anatomy will extend through the first two years, and will include in the first year dissections and laboratory-courses in normal histology and embryology. Gross anatomy should be taught mainly by dissections and from text-books. Applied anatomy and special dissections will fall mainly in the second year, and partly may be left, as regards special points, to the supervision of the teachers of the practical subjects.

My preference is for the Continental rather than the English conception of the department of anatomy, viz., that the professor of anatomy should be a scientific man, broadly trained in comparative and human anatomy, not engaged in professional practice, and having under his supervision all that belongs to normal anatomy. He should be well enough paid to be able to give his whole time to his subject, and should have under his charge a well-equipped anatomic laboratory. There is, however, no serious objection to referring the instruction in normal histology and embryology to the physiologic department. Indeed, it is desirable that some consideration of physiologic function should be combined with the instruction in microscopic anatomy.

The subject of physiology, which treats of the normal functions and activities of the body, is of the first importance in medical education. It has attained a higher degree of precision in experimental methods than any other medical science. A good knowledge of physiology is the best corrective to irrational theories and practice in medicine. Physiology has become a highly specialized science, and should be represented in the medical school by a good physiologic laboratory and a teacher who is thoroughly trained in physiologic methods, and can devote his whole time to the subject. It should be taught by demonstrative lectures, text-books, and laboratory-courses. Laboratory-courses in physiology, although important, are hard to arrange, on account of special difficulties inherent in the subject. They do not, therefore, play so predominant a rôle as in the teaching of anatomy and pathology. The study of physiology will continue throughout the first year, and may extend into the second.

The chemic side of physiology has become so large and specialized and is so important in medical education that chemic physiology, or as it is generally called, physiologic chemistry, has come to be recognized as a distinct department in many medical schools. There are advantages in keeping this branch of study in the physiologic laboratory. Whether or not it is made subordinate to physiology or is established as a separate department will depend largely upon the special interests of the professor of physiology and the kind of man selected to teach physiologic chemistry, as is illustrated by the different arrangements in this regard in the German universities. The teacher should be a thoroughly trained chemist and also familiar with physiology and medicine.

Physiologic chemistry means much more than what is usually taught in our medical schools as medical chemistry, which includes little more than the chemic analysis of certain fluids of the body for diagnostic purposes. Anatomic structure and physiologic function depend to a very large extent upon chemic composition. Our knowledge of the processes of nutrition, digestion, and secretion, both in health and in disease, has been greatly advanced in recent years by the work of physiologic chemists. The microörganisms that cause infectious diseases do injury largely by their chemic products, and many of the questions relating to infection and immunity can be answered only by the aid of chemic investigation.

"I cannot understand," says Hoppe-Seyler, as quoted by Chittenden, "how at the present day a physician can recognize, follow in their course, and suitably treat diseases of the stomach and alimentary tract, of the blood, liver, kidneys, and urinary passages, and the different forms of poisoning, how he can suitably regulate the diet in these and constitutional diseases, without knowledge of the methods of physiological chemistry and of its decisions on questions offering themselves for solution and without practical training in their application."

Physiologic chemistry in the broad sense that I have attempted to indicate should receive proper consideration in a medical school. Its physiologic and pathologic bearings should be emphasized. It should be taught during the first year largely by laboratory-courses. It is important, as already stated, that the student should enter with sufficient preparation in inorganic and general organic chemistry to enable him to proceed at once to the study of chemistry in its physiologic relations.

Pathology I would place as a principal subject in the second year. This subject embraces general pathology, gross pathologic anatomy, and pathologic histology, and with it can be appropriately associated bacteriology. The student should be taught the proper methods of making post-mortem examinations and of recording the results in protocols. The teaching should be by lectures, text-books, and to a very large extent by demonstrations and laboratory-work. As abundant use as possible should be made of the demonstration of fresh patho-

logic specimens, which at the same time can be studied in fresh microscopic sections. Bacteriology can be taught in a laboratory-course of two or three months.

It seems to me advantageous that the systematic study of pathology should precede that of the clinical subjects. The latter, however, should be accompanied with the demonstration of pathologic specimens and with courses in clinical microscopy, so that the pathologic knowledge and experience of the student will be kept fresh and will be increased during the last two years of the course. The pathologic laboratory, which it is desirable to have in close connection with the autopsy-room, should be in charge of a professor who gives his whole time to the subject, and it should be well equipped for work in all departments of pathology, including bacteriology. An active and well-organized pathologic laboratory can have a very important influence for good upon the life and scientific activities of a medical school and hospital.

Pharmacology, or the study of the nature of therapeutic agents and their behavior and effects in the living body, has become of late years a more scientific subject by closer association with the methods of physiology, chemistry, and experimental pathology in investigating the action of therapeutic agents upon patients and experimentally upon animals. Our knowledge has become greater and more precise as to the behavior of drugs within the body, and as to their action upon the circulation, digestion, secretion, and other processes and functions of the body. A large number of new drugs are constantly brought to the attention of the profession. Of these Dr. Delafield has said: "Many of the new drugs are of much help to us; we can do useful things to-day that we could not do some years ago, but it must be admitted that we can also do harm in a greater variety of ways." There is a tendency to greater simplicity in prescriptions and a more extensive employment of other than pharmaceutic methods of treatment.

The teacher of pharmacology should be trained in the modern methods of pharmacologic research, and he should have under his charge a laboratory in which the student may acquire by practical work some of this knowledge.

The teaching of the application of therapeutic agents to the treatment of disease should fall to a large extent upon the teachers of clinical subjects.

As the time of the student will be so fully occupied with anatomy, physiology and physiologic chemistry, and the corresponding laboratory-work during the first year, the study of pharmacology may be left to the second year, where it seems appropriately to belong.

When we are told that hygiene is the study of the causes and prevention of disease, and that its aim is to preserve and to promote health, it would seem as if this subject were of the first importance in medical education. But when we consider what a complete department of hygiene really means, and what are the problems with which the modern hygienist has to deal, such questions as the sanitary condition of houses and communities, the contamination and purification of drinking-water, the disposal of sewage, the adulteration of food, the dangers of certain occupations, the study of vital statistics, matters relating to sanitary legislation, it is apparent that undergraduate instruction in hygiene for the medical student must be more restricted than the theoretic and practical importance of the subject would seem to indicate. Still it is important that some instruction in this subject in the form of demonstrative lectures should be an obligatory part of the course, and among the optional subjects of the last years of the course, laboratory-work in hygiene may be well included. Many licensing and examining medical boards require that the candidate shall be examined in hygiene. The student should learn at least enough of sanitation to know that there are many sanitary subjects upon which intuitional judgments are of no importance, and that as regards these only the opinion of a sanitary expert is of any value.

Practical training in bacteriology falls in many foreign universities to the department of hygiene. This must be taught, but it makes little difference whether it be taught in the pathologic or in the hygienic laboratory, although personally I prefer its association with pathology. Each of these laboratories must be supplied with facilities for bacteriologic work.

We owe to Pettenkofer, of Munich, the first organization of a complete hygienic laboratory, and this has served as the model for many others. The Munich laboratory has been one of the ornaments of the University, and has been of inestimable value to the city in bringing about such great improvements in public sanitation that typhoid fever, the most significant index of the hygienic condition of a city, has virtually disappeared, whereas it was formerly so prevalent that visitors were warned against it. The development of bacteriology and its association with hygiene has led during the last decade to the establishment of a department of hygiene in most German universities. Fortunate that medical school, and especially fortunate that city, in which there is a well-equipped and active laboratory of hygiene. So beneficent may be the working of such a laboratory to the general community, that this is a department for which the support of the public could be reasonably solicited. Medical officers of public health should of course be especially trained in hygiene, as is required in England.

The last two years of the medical course should be devoted to the study of the strictly professional, the so-called practical, subjects. The previous study of anatomy, physiology, physiologic chemistry, pathology, and pharmacology has been the best preparation for the pursuit of the practical branches of medicine, and it should be recognized that the place of these sciences in the course and the amount of time devoted to them are justified on the ground that they furnish an important part of the training of practitioners of medicine and surgery.

The teaching of the strictly professional subjects must be eminently practical and cannot be satisfactory without sufficient clinical material. The student should have the opportunity of frequently observing patients in the hospital-wards, in the operating-room, and in the dispensary, and of seeing methods of treatment and their results. He should come into personal contact with patients, should examine and study them, should take their histories, follow the course of disease, and report upon the cases. Attendance upon clinical lectures cannot take the place of this direct, personal, continuous observation of cases of disease. Students during their last years should enjoy some of those advantages of a

hospital-service that have usually in this country been reserved for the fortunate internes. It is especially as regards arrangements for such personal clinical work for the students that our overcrowded medical schools are at a disadvantage as compared with schools of smaller attendance. Hence Billroth, in each of the fifteen editions of his *Lectures on General Surgical Pathology and Therapeutics*, has admonished students: "Flee therefore in the beginning of your clinical studies the great universities."

The attempt to cover the whole ground of the theory and practice of medicine and of surgery in courses of didactic lectures is rapidly giving place to systematic clinical teaching and recitations from text-books. Practical courses in methods of diagnosis and in the use of clinical instruments of precision are essential. Clinical laboratories have become a valuable adjunct to the department of medicine, and should afford to the student practical courses of instruction relating to such subjects as the examination of sputum, blood, gastric contents, secretions, etc.

Surgical practice has profited even more than medical practice by the scientific discoveries of recent years. The general principles of surgical procedure have become much more simple and straightforward than formerly, and the results of their application are in the highest degree satisfactory. In the allotted time the student can acquire a fair knowledge of these principles by lectures, clinics, and practical courses, but only study and practice after graduation can make him a surgeon.

It seems to me that a considerable part of the instruction on certain subjects in general pathology—as, for example, inflammation and tumors — often assumed by the professor of surgery, should be left to the professor of pathology. I venture to say also that, according to a distinction in titles, and at least to some extent in usage, in many American medical schools the implication that the main professorship of surgery is one primarily of didactic teaching and the subordinate professorships are those of clinical teaching is singularly unfortunate.

Greater use than is customary can be made of experiments upon animals in teaching some matters pertaining to surgery, such as certain details in surgical technique, the healing of wounds of different parts of the body, their behavior under the influence of antiseptics, of foreign bodies, and of other circumstances, etc.

I shall not speak on this occasion of the instruction in obstetrics.

It is impossible for the medical student in his undergraduate days to acquire any thorough knowledge of the various specialties in medicine. Too much should not be attempted in this direction. The study of some specialties should be obligatory, that of others may be optional, but the medical school should furnish opportunities for the study of all.

I should like to see in every medical school a course of lectures upon the history of medicine. It adds to the liberal culture of a physician to learn who have been the great discoverers and the master-minds in medicine, what has been the condition of medicine at different periods of the world's history and among different peoples, what doctrines have prevailed, and by what means progress has been achieved.

As regards the methods of teaching medicine, the keynote at the present time is object-teaching. For nearly two centuries traditions derived from the University of Leyden have largely controlled systems of medical instruction. Purely didactic lectures, designed to cover the whole ground of medicine and surgery, acquired undue prominence in the scheme of instruction. We now believe that greater emphasis should be laid upon the study of text-books, and that the student should be brought into direct, personal contact with the objects of study. The scientific subjects must be taught largely by laboratory-practice and the practical subjects in the clinic.

While laboratory-teaching is of the highest importance, it nevertheless seems to me possible to give to it too exclusive prominence, although I am reluctant to say this in view of the prevalent defects in opportunities for laboratory-work in most of our medical schools. There is no medical school in this country which is able at present to furnish all of the laboratory-instruction which is to be desired.

It should be borne in mind that laboratory-methods are extremely time-taking and are not adapted to teach the whole contents of any of the medical sciences. It is, of course, hopeless to attempt to demonstrate practically all of even the more important facts that the student should learn. Laboratory-work is especially valuable in training methods of thought and observation and in developing the scientific spirit. The knowledge derived from actually seeing, touching, experimenting, is of course more real and impressive than that which comes simply from reading and from listening to lectures, but the student whose knowledge of a subject is derived exclusively from laboratory-courses is likely to lose his perspective in details, to acquire only fragmentary knowledge of a subject, to fail to comprehend the general bearing of observed facts, and not to acquire the general principles and systematic conceptions which are essential. Laboratory-courses may be conducted so that some of these defects are minimized, and these points would perhaps not need emphasis if the time available for the study of the different subjects were unlimited, but a large number of subjects must be taught in a comparatively short time. Laboratory-work should be accompanied and supplemented by the reading of text-books and by lectures. The details of every subject must be learned to a large extent from books. Didactic lectures have their place in presenting the broad outlines of a subject in a systematic way and in emphasizing, as only the living voice can, essential and salient points. Such lectures can be made also demonstrative by drawings, charts, specimens, experiments, the use of the magic lantern and the exhibition of original monographs and works not readily accessible to students.

Recitations upon the subject-matter of lectures, of text-books and of laboratory-courses are especially important. They bring the teacher into personal contact with the student, they secure systematic reading and study, they bring to light the difficulties and misconceptions of the student, and afford opportunity for their correction.

As I have already said, only a relatively small part of medical science and art can be taught during a period of four years. This necessitates a careful selection of the subjects to be taught, of the amount of time to be

given to each subject, of the sequence in which the subjects are to be taken up, and of the methods of teaching. There must be a careful adjustment of the various parts in their relation to the whole, and in their relation to the ultimate objects of medical education—the training of practitioners of medicine and surgery. No subject should be taught as if the student were to become a specialist in it. The teaching must be simple and clear. The problems that are of most interest to the teacher are often not those with which the student need concern himself. The majority of students will not have opportunity or inclination after graduation to devote much time to a continuation of the study of anatomy, physiology, and pathology, and these subjects, being of fundamental importance, should therefore be taught with much thoroughness.

It is important that the student should carry away from the medical school a certain mass of positive knowledge. It is still more important that he should acquire some measure of medical wisdom and of the scientific spirit, and that he should have that methodic training in observing and in drawing logical conclusions, and that familiarity with instruments and methods of examination which will enable him to continue independently his education, to follow and incorporate the new discoveries in medicine, and critically to judge and to make the most of his own observations. Medical education is not completed at the medical school; it is there only begun. Of the various subjects in a medical course, the fundamental medical sciences are especially those which afford to the student this methodic training, and are calculated to develop habits of accurate observation and to stimulate scientific interest in the practical side of his profession. The medical art is becoming more and more the application to practice of medical science. It is the development of medicine along the lines of a biologic science that renders it increasingly attractive to liberally educated men with inclinations to scientific pursuits.

The medical school should afford encouragement to special and advanced work. The few who have the capacity, the inclination, and the time to become investigators and teachers should find there stimulus and opportunity. It should be a place where medicine is not only taught but also studied. It should have a share in the advancement of medical science and art by encouraging original work, and by selecting as its teachers those who have the capacity and the training for such work. The heads of departments should be supplied with a sufficient number of assistants, so that their time need not be given wholly to teaching. These assistants ought to be paid. In most laboratory-courses there should be at least one demonstrator for every fifteen students. In the selection of assistants preference should be given to young men who desire to carry on original work, who have aptitude for such work and for teaching, and who would like to follow an academic career.

The sketch that I have drawn of a medical school is not intended to be an ideal or impracticable one. It is simply what is realized in many foreign universities and what the best opinion in this country desires. It is not to-day realized in any medical school in this country, although a few are approaching this standard.

That a medical school as completely equipped as I have indicated does not exist in this country is not due to any lack of appreciation on the part of medical teachers of its necessity, but is due to the fact that such a school cannot exist without large endowment, either from private philanthropy or from the State, and none of our schools has sufficient endowment for this purpose.

A properly equipped and organized medical school, with all of the necessary laboratories and a sufficient number of the right kind of teachers, is an enormously expensive affair, far more expensive than any other professional school. The most pressing need of our medical schools to-day is thoroughly equipped laboratories in charge of well-trained teachers and investigators who can give their whole time to their special work. The salary of such a teacher as head of a department ought to be not less than from four to five thousand dollars per annum. There should be six of these laboratories, to wit, of anatomy, physiology, physiologic chemistry, pathology, pharmacology, and hygiene. It is better to place bacteriology with pathology or hygiene, than to make of it a separate department.

The suitable construction and equipment of these six laboratories will cost at a moderate estimate from two hundred and fifty to three hundred thousand dollars. From eight to ten thousand dollars is a moderate estimate of the amount needed to cover the average yearly cost of each of these laboratories for salaries of professors, assistants, janitors, and for current expenditures. I should say that, including the fees of students, the interest of not less than $1,200,000, at 5 per cent., would be required to support a completely equipped medical school in this country. This sum does not, of course, include the amount needed for the support of hospitals connected with the school.

I have been kindly supplied by a friend connected with the Prussian Government with a statement of the amount of money bestowed yearly by the Government upon each of the medical institutes in the different Prussian universities. This amount does not include the salaries of the professors in charge of the institutes, but only the salaries of assistants and servants and the sum available for current expenses. I am permitted to publish only the total amounts and not the salaries of individuals.

The annual dotation by the Government for each of the following medical institutes in the University of Berlin for the purposes specified is: For the first anatomic institute, 40,690 marks; for the second anatomic institute, 11,430 marks; for the physiologic institute, 47,746 marks; for the pathologic institute, 24,450 marks; for the pharmacologic institute, 17,202 marks; for the hygienic institute, 18,500 marks; for the first chemic institute, 26,440 marks; for the second chemic institute, 18,435 marks. The Prussian Government, therefore, expends annually, outside of the salaries of professors, a little over fifty thousand dollars to support the laboratories of anatomy, physiology, pathology, pharmacology, hygiene, and chemistry in a single university. About three times as much money is given by the Government to the support of the laboratories as is devoted to the salaries of the professors, but these salaries are largely, often many times, increased by the fees of students. In

Germany the expenses of living and of the purchase of laboratory-supplies are less than in this country.

Medical education in this country has until recently been left to its own devices. Only within recent years has it received any aid worth speaking of from private philanthropy or the State, save the indirect aid from the establishment of hospitals and dispensaries.

The greatest impulse for the endowment of higher education in this country has been religious zeal. Contrast for a moment the endowment of theologic study with that of medical study. According to the forthcoming *Report of the Bureau of Education*, for proof-sheets of which I am indebted to the kindness of Mr. Harris, the Commissioner of Education, there were in the United States in 1890–91 only five endowed chairs in medical colleges, and not a single one of these south or west of Philadelphia. It may, I think, be questioned whether all or even any of the five chairs were adequately endowed. On the other hand, there were 171 endowed chairs of theology, many of these being in the West and South. According to the report of the same bureau, as quoted by Dr. Bayard Holmes, the productive funds in the hands of medical schools, both those connected with and those independent of universities, in the United States was, in 1889, $249,200; while, at the same time, there were in the hands of schools of theology productive funds to the amount of $11,939,631. In 1892, these figures were, for medical schools, $611,214, and for theologic schools, $17,599,979. In 1890–91, out of a total of $1,466,399 given to institutions for professional instruction, 63 per cent. was given to theologic schools and 17 per cent. to medical schools. Medical departments of State universities received, in 1892, State aid amounting to $40,500; technologic schools received State aid to the amount of $747,504. When one considers that there are more than twice as many students of medicine as of theology, and that medical instruction is much more expensive than that of theology, and requires costly laboratories, the contrasts afforded by these figures are startling.

The Report of the Commissioner of Education comments as follows upon these statistics and similar ones relating to legal education: "There can be no doubt of the propriety of private philanthropy endowing theological study, nor of the State's enterprise in supporting technical and pedagogical studies, but it is difficult to discover why such consummately practical and important topics as law and medicine should be neglected by private benevolence or public caution. It seems to be conceded that unendowed instruction in law or medicine will be just as poorly given as unendowed instruction in theology or pedagogy. Yet we find instructors in both these sciences, though necessarily State-supported on the Continent of Europe, in America left to live upon the meager diet of tuition-fees."

Higher medical education, no more than any other form of higher education, is self-supporting. A number of reasons might be specified to explain this singular neglect of medical education as an object of private endowment or State aid. I shall not consider these reasons here. Many of them pertain to conditions that have changed or are changing. The tide has already turned, and "the old order changeth, yielding place to new." The doom of the medical college responsible to nobody, without hospital or laboratory facilities, has sounded.

"Unto everyone that hath shall be given, and from him that hath not shall be taken away even that which he hath."

The needs of medical education have begun to be recognized by high-minded and public-spirited philanthropists, such as Johns Hopkins, Vanderbilt, Mary Garrett, and your own John L. Woods. Such benefactors have "linked their names to those imperishable things" which make the most enduring monuments of a republic. I was particularly impressed by Mr. Adams' statement in his memorial address upon John L. Woods in this place, last October, that Mr. Woods' generous benefaction to this college was chiefly determined by "the fact that medical education had never been a favorite object of benevolence, while the improvement of medical education was really of the greatest importance."

In conclusion, let us not forget that a university or a medical college may have large endowments, palatial buildings, modern laboratories, and still the breath of life not be in it. The vitalizing principle is in the men —both teachers and students—who work within its walls. Without this element of life, this bond between teacher and taught, these things are but outward pomp and show. But let these greater opportunities receive the breath of life from the inspiration of great teachers and they then become the mighty instruments of higher education and scientific progress.

CLINICAL MEMORANDUM.

A CASE OF ANGINA LUDOVICI.

By G. H. STOVER, M.D.,
OF RATON, COL.;
LATE RESIDENT PHYSICIAN IN THE ARAPAHOE COUNTY HOSPITAL, DENVER, COL.

THE following case occurred during the visiting service of Dr. J. W. Exline, of the medical staff of the Arapahoe County Hospital, during my residence there:

Peter F., sixty-six years old, was admitted August 10, 1893, with the symptoms of an incipient submaxillary abscess of the left side. In the afternoon of the 11th he complained of sore-throat during my absence and was given tr. guaiac. ammon. by another resident. The soreness increased, and by evening there was slight dysphagia. Examination showed a little swelling of the left anterior pillar of the fauces; considerable saliva was being secreted. The man had not received any calomel. The conditions continued about the same until the evening of the 12th, when, on my evening round, I found him suffering from dyspnea, not very marked. Examination showed that the swelling on the left side of the throat had extended and presented more of an edematous than an inflammatory appearance.

Upon the advice of Dr. Exline, he was given ice to hold in his mouth, and ice was applied to the side of the neck. A little later I saw him again and the dyspnea was alarming. He could not lie down, but was sitting up gasping for air; his lips were dark and his face expressive of the greatest anxiety and agony. Another examination was made, showing the left tonsil, soft

palate, and walls of the pharynx to be greatly swollen; and there was dangerous edema of the glottis, from which he was in imminent danger of suffocation. The mucous membrane of and about the pharynx and the tonsil was not hyperemic or injected, and there were no signs of exudate or false membrane upon it; neither were there any ulcers upon the tonsils.

I ordered ten grains of calomel at once, and instructed the nurse to spray the throat every fifteen minutes with a solution of tr. ferri chloridi, ℥xxx to the ounce of water; meanwhile, as I was unable to reach the laryngologist by telephone, I prepared to perform tracheotomy should the embarrassment of respiration continue. The spray was thus used some five or six times, with remarkable effect, as the breathing soon became much easier and the edema less. The spray was then used every half-hour for a few hours, and the remainder of the night every hour. At frequent intervals the man was given whiskey and milk (the naso-esophageal tube to be used if necessary), and this, alternated with eggnog, was continued throughout the next day. On the morning of the 13th there was only slight dyspnea and the calomel had acted thoroughly. The spray was then used every two hours, later every three, and finally omitted.

By evening there was noticed on the floor of the mouth (not in the cheek, as in noma) a good-sized necrotic patch, having a slight odor.

Hydrogen dioxid was frequently applied to this, with the result of limiting the spread of necrosis and almost destroying the odor. This necrotic tissue detached itself, and was expectorated at times during the next few days. The submaxillary inflammation did not go on to abscess-formation. The man was gradually put upon regular diet, was given iron and quinin in tonic doses, and rapidly recovered from his prostration. He was discharged September 2, 1893.

While the case here reported differs somewhat from the rather vague accounts of some authors, I believe that the diagnosis, which was based mainly upon Strümpell's[1] description, is correct.

The prompt action of the rather strong solution of iron certainly obviated tracheotomy.

MEDICAL PROGRESS.

The Supra-renal Gland and its Relation to Addison's Disease.—AULD (*British Medical Journal*, No. 1741, p. 1017) details some interesting facts elicited in the course of a study of the supra-renal gland, and calls attention to the extremely vascular character of the inner cortical layer, contrasting strongly with the delicate, pearly-looking tissue of the medulla on the one side and the opaque, yellowish, external portion on the other. The blood seems almost entirely collected in this zone; the intra-vascular pressure is considerable, as indicated by the welling forth of the fluid that takes place after section. Further examination shows that the cells composing this layer are more or less pigmented, highly so in some cases, but faintly so in others. The existence of the pigmented cells has long been recognized, but their significance has not hitherto been understood. Sections reveal the fact that large numbers of red blood-corpuscles make their way into these cells, and are to be found in their interior in all stages of regressive metamorphosis, from the completely formed cell downward. Apparently by a chemiotactic action certain of the red corpuscles are selected and attracted within the phagocyte-cells. They can be seen passing inward, and at first cannot be distinguished in any respect from those in the vessels outside. Gradually they assume a greenish-brown coloration, and thereafter begin to break up into larger and smaller particles. The nucleus of the phagocyte is usually much obscured by the pigment-particles, but it is large, and together with the protoplasm may show signs of formative activity. The opinion is expressed that at least one of the functions of the supra-renal gland is the destruction of a certain class of effete red blood-corpuscles. In the medulla three kinds of cells can be made out: (1) glandular columnar or polyhedral cells, faintly eosinophilous, and with frequent, very large, round or oblong nuclei; these are regularly arranged in the meshes of the reticular network; (2) highly branched corpuscles, with peculiar staining reactions and absolutely non-eosinophilous; these seem to be modified nerve-cells; (3) ganglion-cells proper, which both cluster round large nerves that pass straight through the cortex, and likewise exist in isolated fashion in the reticular meshes. It is assumed to be the office of the medulla to test the quality of the blood, which, so far purified by filtration through the pigmented zone, passes through the medulla before it enters the circulation; certain appearances lead to the suspicion that the medulla is concerned in the further reduction of effete substances. The blood, after passing through the medulla, has the characters of arterial oxygenated blood. Viewing the supra-renal gland as an excretory or depurative organ the symptoms of Addison's disease may be ascribed to an intoxication resulting from the retention of excrementitious products, whilst the pigmentation of the skin is due to the circulation of certain products of the decomposition of hemoglobin. The cells of the cortical zone of the gland are but moderately eosinophilous, and their nuclei readily absorb logwood. Although the acini are usually entirely filled with cells, under favorable circumstances a considerable central lumen may be seen to be filled with secretion—an appearance resembling that found in the anterior lobe of the pituitary body. This secretion is carried away by lymphatics to minister to certain needs of the organism.

Fatal Hemorrhage from Rupture of an Aneurism of the Hepatic Artery.—SCHMIDT (*Deutsches Archiv für klinische Medicin*, B. lii, H. 5 u. 6, p. 536) has reported the case of a woman, some forty years old, under observation with a diagnosis of gall-stones, who, five weeks before death suffered from a moderate gastro-intestinal hemorrhage, a few days later from a second, together with slight jaundice, a third three weeks before death, and finally a fourth, copious bleeding, terminating fatally. Upon post-mortem examination, in addition to the profound general anemia, a false aneurism was found involving a branch of the hepatic artery, and rupture of which had caused death. There were numerous inflammatory adhesions in the right hypochondrium, involving the hepatic flexure of the colon, the great omentum, the duodenum, the gall-bladder, and the inferior surface

[1] Text-book of Medicine, Am. ed., 1892, p. 326.

of the liver. In the midst of the adhesions were a number of small abscesses, none of which, however, communicated with the gall-bladder. Both large and small intestine were filled with blood, which had gained entrance through three openings of communication between the duodenum and the gall-bladder. At each of these openings in the bladder lay a gall-stone, and the three stones fitted closely together. The cavity of the gall-bladder was dilated, while its wall was in places destroyed. The viscus contained also a false aneurism occupied by a large clot of blood, and communicating by an abnormal opening between the gall-bladder and the hepatic duct with a branch of the hepatic artery. The wall of the duct was ulcerated, and its lumen was dilated in the neighborhood of the perforation. The liver contained a large number of small foci, from yellowish-brown to dark-green in color, with softened centers, and containing pus-corpuscles, liver-cells, and granular detritus. These were found to represent altered inter-acinous biliary passages. Some of the biliary ducts were dilated, and in places surrounded by cellular infiltration. Two forms of microörganisms were found: principally streptococci and short rods in smaller proportion. The parenchyma of the liver was in places lost, as a result of increase in the interstitial connective tissue.

Death from Convulsions following Rupture of the Stomach.—O'FARRELL (*Lancet*, No. 3690, p. 1243) has reported the case of an apparently healthy, fairly strong boy, nearly thirteen years old, who while playing became cold and suffered with headache. The boy drank some tea, but would eat nothing, and was given a saline and put to bed. Vomiting took place twice during the night, and by morning the child was no better. The saline was repeated and was followed by vomiting. The complaint of headache persisted, and the mother gave the boy five grains of phenacetin, and in an hour and a half repeated the dose. An hour and a half after this the child suddenly began to scream and had an attack of the most violent convulsions, affecting all of the voluntary muscles. This paroxysm was followed in a short time by another, and the fits increased in frequency and intensity for an hour, when death took place. On post-mortem examination the abdomen was found full of matter similar to that which had been vomited during life and consisting of partly digested food mixed with bile. On the posterior wall of the stomach was a rent three inches long, around which was a large area of inflammation, while the neighboring tissues were soft and pulpy. The cavity of the stomach was empty; the esophagus and tongue were normal. The other organs were structurally perfect, but greatly congested; there was no peritonitis. Histologic examination disclosed a condition of fatty degeneration of the muscular fibers around the rent in the wall of the stomach.

THERAPEUTIC NOTES.

Arsenical Urethritis.—CHALKE (*Indian Medical Record*, vol. vi, No. 8, p. 237) has reported the case of a man who came under observation on account of a urethral discharge of three days' standing, without assignable cause. There had been no sexual intercourse for several months. The meatus urinarius was slightly inflamed; the discharge, which had been mucoid at the outset, was now muco-purulent. The urine was high-colored and its evacuation was attended with scalding. The man had had an attack of gonorrhea six years before, but subsequently there had been no difficulty with the genito-urinary apparatus. No constitutional or mechanical cause for the condition could be elicited, but on inquiry it was learned that the man had for two weeks been taking five minims of arsenical solution thrice daily, containing a total of about a grain and a half of white arsenic. Further investigation disclosed the presence of other symptoms of arsenical intoxication, *e. g.*, slight conjunctivitis, with suffusion and smarting of the eyes, slight edema of the lids, dry cough, irritation of the throat and nose, painful cramps, colicky pains in the lower portion of the abdomen, irritation of the rectum, painful defecation, urticaria, and general prostration. The arsenic was at once withdrawn, and diluents and demulcent drinks directed, together with an alkaline mixture. Improvement was immediate and rapid, despite the fact that stimulants were given, and in the course of two weeks the man was quite well.

The Treatment of Pulmonary Tuberculosis with Petroleum.—Having observed that laborers about the petroleum-wells of Roumania were free from pulmonary tuberculosis, PELLISSIER (*Bull. gén. de Thérap.*, 18. liv., t. cxxvi, p. 416) was led to the use of filtered crude petroleum, administered in capsules, in the treatment of the cases of pulmonary tuberculosis that came under his care during a period of two years, and describes the results as surprising. The cough soon ceased, then the sweats; appetite and sleep were restored; the pulmonary lesions receded; the breath smelled strongly of petroleum; but the digestion was not deranged. The patients were also made to breathe air that had been passed through petroleum. Administration of petroleum by the rectum was tried, but proved unsuccessful.

For Pulmonary Tuberculosis CROCQ (*Internationale klinische Rundschau*, 1894, No. 21, p. 745) recommends the administration of ergot or ergotin. The former may be given in the form of the fluid extract, in doses of from half a dram to a dram or more, and the latter in doses of from half a grain to four grains or more, several times daily. Not only is hemoptysis thus controlled, but expectoration is diminished, the sense of oppression is relieved, and the general condition is improved.

For the Hemoptysis of Pulmonary Tuberculosis DAREMBERG (*La France Méd.; Memorabilien*, xxxviii, 3, 153) recommends, in addition to the usual measures employed, the application of ice to the testicles or the labia majora. There is felt a sudden, painful temporary sense of pressure, and the hemorrhage ceases. If the bleeding recurs the application may be made twice daily or continued for five minutes at a time.

For Amenorrhea.—

R.—Hydrarg. chlorid. corrosiv. . . gr. ¾.
Sodii arseniat. . . . . gr. j.
Ferri sulph. exsic. . . . . gr. xxx.
Potassii carb. . . . . gr. xv.
Ext. nucis vomicæ . . . . gr. v. M.
Ft. pil. no. xxx.
S.—One before each meal. *Practitioner.*

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POSSIBLE CAUSES OF CHRONIC AILMENTS.

CHANGES affecting the health and the comfort of communities often take place so slowly and so insidiously that they are unnoticed until detected by some shrewd investigator or until some catastrophe attracts widespread attention to them. An instance of the first method was presented several years ago, when DR. D. D. STEWART, by making a careful inquiry into some cases of chronic disease that had seemed inexplicable to other physicians, elucidated the fact that chrome-yellow was being largely used by Philadelphia bakers as a substitute for eggs, and was causing much chronic poisoning. STEWART discovered nearly one hundred cases—many fatal—originating from two shops. Sudden developments of typhoid fever are constantly occurring in all parts of the world, and indicating previously unsuspected sources of danger in water and milk.

It is inadvisable to imagine causes of disease, yet sanitarians should not be oblivious to the manner in which the manufacturing industries are being modified by invention and discovery, or to the fact that such modifications are guided almost entirely by financial considerations, the effect on public health and happiness being allowed no influence, except when the injury is too flagrant to escape notice. In this manner, for instance, artificial colors have been steadily substituted for the natural colors in articles of food and drink. Very few manufacturers (there are, it is true, some honorable exceptions) have ever investigated the wholesomeness of anilin-red, methyl-orange, and eosin before using them in food-products; few dairymen have thought it worth while to inquire if the preservatives they employ are unwholesome; nor have brewers cared to learn anything of the physiologic effects of beer containing saccharin, salicylic acid, or substitutes for hops and malt.

It is not impossible, therefore, that certain chronic ailments of obscure nature may arise from depression of the vital functions by some such unnoticed abnormal conditions, perhaps hardly reaching the grade of chronic poisoning. The extended contamination of canned goods, as shown by the investigations of the United States Department of Agriculture, was noticed some months ago in THE NEWS, and the possibility of the production of chronic ailments by this contamination then suggested.

Numerous other forms of food-adulteration, intentional and accidental, may be suspected, and among these may be mentioned the now widespread use of imitation-butter. Few persons appreciate the extent to which this substitution occurs, especially during the season when butter commands a high price. Much has been said about the wholesomeness of oleomargarin, but apart from the fact that it is certainly less readily digested than butter and less appetizing, it has been recently learned that it is subject to admixture with dangerous ingredients. That it is artificially colored has long been known, but it has generally been assumed that the colors used were only those usually employed by butter-makers—annatto and turmeric—and considered harmless. It has been shown, however, by recent analyses that at least one coal-tar color—methyl-orange—is now largely used, and as we are ignorant of the effect of long-continued small doses of this body, it is obvious that we have here a source of danger; nor is there any guarantee that the oleomargarin-manufacturers may not without notice or inquiry substitute a more harmful color if a cheaper or otherwise more satisfactory one be found.

Attention has been called to a still more dangerous adulterant, namely, paraffin. The chemists of at least one State experiment-station report this discovery, and there can be no doubt of the harmfulness of such addition. Paraffin is entirely indi-

gestible, and must interfere with the digestion of any fat with which it may be mixed. If this admixture be general, as may easily be the case, it will surely give rise to chronic digestive derangements.

Another source of chronic ailments, especially involving the nervous system, may be suspected from the extensive use of water-gas. This product has won its way into favor on the basis of cheapness alone, and many large cities have adopted it for general consumption. In spite of the statements of experts engaged by the makers, water-gas is far more poisonous than gas made from bituminous coal. This difference is almost entirely dependent on the presence in the former of a large percentage of carbon monoxid, one of the most insidious and deadly gases with which we are acquainted. Leaving out of question the cases of acute poisoning, which have added materially to the number of accidental deaths in all places in which water-gas has been introduced, it is worth considering if much injury to health is not occasioned by the continual leaking of the gas in quantities not sufficient to produce marked symptoms. House-fittings are rarely perfect, and although the smell of illuminating gas is often a means of warning of its escape, individuals may become accustomed to a slight odor of it, and fail to notice the leak. The active ingredient of water-gas is cumulative, and the constant inhalation of air containing only minute amounts of it must establish a condition of ill-health difficult of diagnosis. One often hears of persons who are sensitive to "sewer-gas." In reality there is no such specific gaseous product, but illuminating gas frequently finds its way into drains and sewers, and may thus get into houses, as well as through direct leakage. The possibility of such slow poisoning will make us thankful that the applications of electric heating and lighting are destined at no distant day to render gas an antiquated agent in the household.

EDITORIAL COMMENTS.

Elevation of Temperature as a Symptom of Paralysis Agitans.—A frequent, though not invariable, symptom of paralysis agitans consists in the occurrence of a sense of flushing and heat, often attended with perspiration. Although considerable attention has been devoted to the thermometry of paralysis agitans, there is a lack of concordance of view as to whether either the general temperature or the temperature of the tremulous parts undergoes change. Among other things it has been thought that the movements of the affected parts most likely give rise to some increase in the bodily temperature and a corresponding sense of heat. Some interesting observations on these mooted questions have recently been made by FUCHS at the clinic of Nothnagel at Vienna and are detailed in a communication in the *Zeitschrift für klinische Medicin*, Band xxv, Hefte 3 u. 4, p. 321. Among twenty-six cases of paralysis agitans he found nine that presented periodically recurring elevation of temperature, which disappeared rather rapidly after several hours' duration, the highest figure reached being 102.9° F. In cases in which a subjective sense of warmth was present it was found that there was also elevation of temperature. In one case, simultaneously with the subjective sensation, a difference was observed in the temperature in the axillæ and in the elbow-flexures, being 0.5° to 0.7° higher in the left axilla than in the right, although the right upper extremity was but little shaken and the left scarcely, if at all. The frequency with which this elevation of temperature may be observed in the course of paralysis agitans would thus seem to place it among the symptoms of the disease. Further, the curious observation has been made that in some cases a sense of chilliness has been present in conjunction with a depression of the temperature. In some cases, too, profuse perspiration occurs independently of elevation of temperature. These several manifestations are suggestive of involvement of thermic and vasomotor centers in the lesions of the disease.

Acute Miliary Tuberculosis of Pharyngo-laryngeal Type.—To the four types of acute miliary tuberculosis hitherto described—(1) a typhoid type, in which the symptoms of constitutional infection predominate; (2) a broncho-pneumonic type, in which the predominant symptoms are referable to the respiratory apparatus; (3) a meningeal type, presenting symptoms of inflammation of the cerebral meninges; and (4) an intermittent type of protracted duration—CATTI (*Wiener klinische Wochenschrift*, 1894, No. 24, p. 438) would add a fifth, which he designates the pharyngo-laryngeal type. This, like the meningeal type, occurs especially in children. It is very uncommon, and from the symptoms of laryngeal obstruction to which it gives rise may be mistaken for diphtheria. The affection first manifests its existence by greater or less difficulty in deglutition. On examination the uvula, the soft palate, the epiglottis, and the ary-epiglottic folds will be found swollen, edematous, reddened, and at times ecchymotic. At the same time there occurs an abundant eruption of partly gray, transparent, and elevated tubercles, and partly yellowish, not prominent, tubercles. The cervical and accessible thoracic lymphatic glands may be hyperplastic, and the action of the heart accelerated. The pulmonary percussion-resonance will be unaltered, while auscultation reveals the evidences of laryngeal obstruction. The temperature may not be altered. A fatal issue may result in the course of two or three weeks amid the symptoms of cardiac weakness, dyspnea, and cyanosis, or the duration may be protracted. It is possible that this form of miliary tuberculosis is not so rare as it appears to be, and that some cases of supposed diphtheria of the larynx of long duration and terminating fatally from heart-failure are actually cases of the laryngo-pharyngeal form of miliary tuberculosis.

The Inhalation of Oxygen in Opium-poisoning.—The usefulness of potassium permanganate as an antidote in the treatment of opium-poisoning may, in view of the evidence presented, be admitted. Upon what this antagonistic action depends has, however, not yet been demonstrated, though it is reasonable to assume that the oxidizing quality of the potassium salt plays a prominent rôle in this connection. This supposition would, in some measure at least, seem to be supported by the fact that the permanganate has also proved useful in the treatment of phosphorus-poisoning, cyanid-poisoning, and snake-bite. Further confirmation of this view appears to be afforded by the recent experience of Merry (*Lancet*, No. 3692, p. 1372), who reports a desperate case of opium-poisoning in which inhalations of oxygen seemed to act as the determining factor in bringing about recovery. The victim, a male, thirty-two years old, had, three hours before coming under observation, taken of a preparation of variable composition an amount supposed to represent about eight grains of morphin. The man was unconscious, cyanotic, and breathing stertorously about fifteen times per minute. The corneal reflex was abolished, and the pupils were small and inactive. Flagellation, cold affusion, the use of the interrupted current, the vapor of strong ammonia, and subcutaneous injections of ether failed to bring about reaction. The respirations were labored and had fallen to eight per minute, and the pulse had become almost imperceptible. The cyanosis suggested the use of inhalations of oxygen, and these were forthwith instituted, pure undiluted gas being employed. In the course of twenty minutes the face had regained its normal color, the respirations were fuller, easier, and more frequent, and the pulse had become perceptible and regular. The patient was still stupid, although there was a slight response to corneal irritation. After an interval of half an hour the inhalation of the gas was resumed, with further marked benefit. Consciousness returned, and after the repetition twice of the inhalations after intervals of three-quarters of an hour, the point of danger seemed to have been passed. The man remained drowsy during the day, but did not relapse into stupor. He made a perfect recovery. The suggestiveness of this experience is entirely obvious, and the safety and innocuousness of the method must surely commend it to favorable consideration and intelligent trial in suitable cases.

REVIEWS.

An American Text-book of Gynecology, Medical and Surgical, for the use of Students and Practitioners. By Henry T. Byford, M.D., John M. Baldy, M.D., Edwin Cragin, M.D., J. H. Etheridge, M.D., William Goodell, M.D., Howard A. Kelly, M.D., Florian Krug, M.D., E. E. Montgomery, M.D., William R. Pryor, M.D., George M. Tuttle, M.D. Edited by J. M. Baldy, M.D. Philadelphia: W. B. Saunders, 1894.

We believe that this book is a valuable addition to the literature of gynecology. The writers are progressive, aggressive, and earnest in their convictions. They represent the best thought of the younger generation of medical men in this branch. What faults the book has indeed are the faults of youth. There is some evidence of hasty writing and careless editing. Opinions are often expressed in more dogmatic style than the same writers will employ, perhaps, later in their lives, and there is occasionally an apparent lack of studiousness in the preparation of the articles. To illustrate in part our meaning: Amputation of the clitoris is recommended "on account of . . . . interference with coitus, etc., particularly when occasioning trouble in childhood" (p. 165).

The labia seem to have been the editor's or the proof-reader's chief orthographic stumbling-block. There is repeated mention of *labum minus*, *labum majus*, and the right *labia majora*, and this too as legends under illustrations. In the section on malpositions of the womb, the dogmatic assertion is made that "no attempt should ever be made to replace or otherwise interfere with a uterus which is bound in its displaced position (*sic*) by adhesions," a dictum to which men of experience will not unqualifiedly subscribe. The writer, in fact, seems not to have the courage of his own convictions, for he describes minutely the methods of doing what he strongly condemns.

The illustrations are exceedingly good for the most part. A few are in very questionable taste. Just as much could be taught by outline drawings of postures for examination and operations, as by photographs of nude women. In one or two sections the illustrations appear superfluous. The picture of a man washing his hands might be placed in this category.

In spite of these few imperfections the work, we repeat, is valuable. Its most useful field will be among general physicians. No book of composite authorship can ever be the best text-book for the medical student. There is in all such books an average of excellence. If any one of the individuals whose articles are above that average had written the entire work, it would be a better book than it is.

Human Bones of the Hemenway Collection of the U. S. Army Medical Museum. By Washington Matthews, J. L. Wortman and John S. Billings, Surgeons, U. S. Army.

This elaborate production is a reprint of a memoir from the publications of the National Academy of Sciences. It includes the results of investigations of North American Indian skulls obtained by an expedition which was fitted out in 1887 with funds supplied by the liberality of Mrs. Mary Hemenway, of Boston, for exploring certain ruins in the valley of the Gila River in Arizona. All the facts are set forth in the most interesting manner by Dr. Billings in an introduction, the bulk of the pamphlet being written by Drs. Matthews and Wortman. The whole constitutes a bulky quarto of one hundred and thirty-five pages, containing over three hundred carefully executed figures. It is not often that the publications of the National Academy of Sciences can be appropriately reviewed in the columns of The Medical News, but that this essay can be so reviewed is evident when we reflect that medical men are never indifferent to the facts of human anatomy and the physical condi-

tions of the human race. Nothing but praise can be awarded Dr. Matthews, who has written the greater part of the memoir, for his conscientious and laborious researches. That it was not expected from him that he should frame a very striking essay on craniometry is conceded. In the present state of the subject nothing is so absolutely uninteresting as craniometry. As to deductions Dr. Matthews is wisely silent. Craniometry has no deductions to give us worthy of the name.

We look in vain for conclusions respecting the previous work of Drs. Billings and Matthews on composite photography as applied to the cranium. Dr. Wortman's essay on the hyoid bone shows that the body of the bone was almost entirely free, and that the separate pieces of which the hyoid arch is composed were seldom united in a single bone even in the most aged individuals. This is a curious fact, and in our judgment is not explained on an hypothesis which is based on the use of the hyoid bone in speech.

We agree with the stricture of Dr. Matthews on the attempts to define the "German horizontal plane." We have studied at least one skull in which such a line would compel the face to so tilt as to bring the orbits in a position not unlike that of M. Scheuchzer's famous fossil. One would readily pronounce such a specimen to have belonged, if not to a *homo diluvii testis*, at least to a *homo theoscopos*.

A Manual of Minor Surgery and Bandaging. By Christopher Heath, F.R.C.S., Surgeon to the University College Hospital, etc. 12mo, pp. 389. Philadelphia: P. Blakiston, Son & Co., 1894.

A book in its tenth edition, and one which has now had an existence of over thirty years, needs no recommendation—it speaks for itself. This, the last edition, embodies the latest teachings as regards antiseptics, and is therefore more valuable than its predecessors.

The introductory chapter upon the relation of the house-surgeon to the other hospital-officers is particularly excellent, and might be read with advantage by many attending surgeons. It is particularly strong in recommending careful attention to detail, and seeks to impress upon the surgeon that no detail, no matter how trifling, should be *infra dig.* if it enhances the comfort of the patient or favors the progress of the case. The manner of procedure for the collection of court-fees in police-cases illustrates the practical character of the work in a phase of medical practice in which the novice is uninitiated. The preference given to ether as an anesthetic, while not thoroughly English, strikes the American favorably. All the sections are well written, and the book deserves the success it has always received.

Society of the Lying-in Hospital of the City of New York (Midwifery Dispensary). Medical Report, 1893. New York: Martin B. Brown, 1894.

This report covers a period of fifteen months, and gives statistics of 2583 cases, the largest number of which were treated in the Dispensary. A "Statistical Synopsis," by J. C. Edgar, gives a clear *résumé* of the work done, together with an analysis of various clinical features. The report contains also an elaborate article on "Fever in the Puerperal Woman," by S. W. Lambert and H. McM. Painter; a paper entitled "A Modification of the So-called Credé's Method of Expressing the Placenta," by J. W. Markoe, and a report of "Two Cases of Symphysiotomy," by J. C. Edgar. In addition to formal reports by the pathologist, embryologist, orthopedic surgeon, and bacteriologist, there is an interesting illustrated article entitled "Studies in the Development of the Alimentary Canal," by D. H. McAlpin, Jr.

SOCIETY PROCEEDINGS.

AMERICAN NEUROLOGICAL ASSOCIATION.

Twentieth Annual Meeting, held in Washington, D. C., May 30 and 31, and June 1, 1894.

First Day—May 30th.

Dr. B. Sachs delivered the President's Address. He said that from the scientific point of view clinical medicine and neurology are one and inseparable. The diseases that the neurologist is called upon to recognize and to treat are such that he must necessarily maintain a deep interest in the affections of the heart, of the liver, of the stomach, and surely of the kidneys. He cannot afford to neglect the lungs, nor even the bladder. He is asked, perhaps a little too frequently, to consider the condition of the generative organs, and he must be even better versed than the surgeon in the anatomy of nerves and muscles. The eye, the ear, and the nose have claims upon him. The entire organism is his daily concern, although he may claim to be more intimately acquainted with the structure and functions of the nervous system than with those of any other part.

It is nothing new to think of the ganglion-cell as the nutritive center for the white fiber connected with it, and to know that this white fiber is prone to undergo disintegration if separated from its nutrient cell; but it is new to learn that the entire nervous system is made up of such units of nerve-structure, consisting of a nutritive cell, of the white fiber that emanates from one process of this cell, and of its termination in brush-like fashion. It is new, too, that these units are connected with one another not by direct contact; that the terminal arborizations approach one another without coming into contact, and that these neurons connect the white and gray matter, and pass freely from one to the other, or may exist even within the gray matter alone. If the nutrient cell is destroyed, or if its influence over the fibers connected with it is interfered with, the death of this neuron is the natural result.

Dr. Samuel Ayres, of Pittsburg, read a paper entitled "Myxedema Treated with Sheep's Thyroid." It was particularly advised that at the outset small doses be administered—from one to three grains of desiccated powder in capsules or tabloids once or twice daily, and gradually increased to five grains three times daily, if required. Large doses at the outset have been frequently followed by dangerous symptoms.

The paper was chiefly devoted to suggestions as to the possibilities of the preparation in certain diseases non-myxedematous, and careful trial was recommended in selected cases of acute dementia, mania, melancholia,

epilepsy, chorea, tetanus, anesthesia, and erysipelas; but its indiscriminate employment was strongly discouraged.

DR. STARR, of New York, presented five photographs of patients with myxedema, in three of whom unmistakable improvement was shown. He had used various preparations of the gland, but there were serious objections to many of them. He had of late made satisfactory use of the cheapest preparation on the market, which is put up in the form of tabloids, each containing five grains of the extract. He was often consulted on account of the mental symptoms which were in many instances prominent in this disease. He had frequently observed melancholia with suicidal tendencies. In eight there were symptoms of dementia. He had found the preparation of use in neuroses of the menopause. Among a number of cases of akromegaly only two seemed to be benefited. The headache was relieved and a feeling of *bien être* was produced. His experience with thyroid gland in paralysis agitans, epilepsy, and progressive muscular atrophy was negative.

DR. GEORGE W. JACOBY, of New York, spoke of the difficulties in the diagnosis of true myxedema, and reported a case and presented photographs of a child aged fourteen. There was evidence of muscular dystrophy in the lower extremities. He thought that further experience might show a relationship between these two affections.

Dr. E. D. FISHER, of New York, thought that the use of thyroid extract should be confined to the treatment of myxedema. There was no rational indication for its administration in other diseases.

THE PRESIDENT dissented from this view, and believed it was but fair to try this medicine empirically, as we were not as yet familiar with the true function of the thyroid gland.

DR. F. X. DERCUM, of Philadelphia, reported a case successfully treated by the extract.

DR. L. C. GRAY, of New York, stated that all animal extracts had a similar temporary effect. A number of cases of myxedema had relapsed. He had used the thyroid extract in only one case, with the usual good result.

DR. LEONARD WEBER, of New York, said there was not a single case on record that had been cured.

In one case under his observation, the result was remarkably good. Relapse is likely to occur unless the remedy is continued. He believed that greater and more permanent relief could be obtained by surgical means.

DR. WALTON, of Boston, mentioned a case which improved after the use of only five grains three times a day.

DR. J. ARTHUR BOOTH, of New York, read a paper entitled "The Thyroid Theory in Graves' Disease; Two Cases treated by Thyroidectomy." The following conclusions were presented: 1. It is by no means decided that a mere excess of the thyroid secretion is the sole and essential factor in Graves' disease; but as microscopic examination has demonstrated an enormous hyperplasia of the secreting structure, it is certainly reasonable to suppose that these changes must have some profound effect both on the quantity and the quality of the secretion. 2. If altered structure and not size is the test of the disease, then thyroidectomy should be considered even in those cases in which there is little or no enlargement of the thyroid. 3. Cases of Graves' disease may be entirely cured by thyroidectomy. How this is brought about is not clear as yet. It may possibly be by one of three ways, viz.: a diminution of the functional activity of the gland-substance; a relief of the stretching and irritation of the sympathetic nerve-fibers; or, finally, the removal of pressure.

DR. J. J. PUTNAM, of Boston, said that in one English case reported, the patient seemed to be cured after the use of thyroid extract. He spoke of two patients treated by operation; one was improved and the other died. In both the pulse was excessively rapid. He thought it better to operate early, and not to wait until the heart's action became seriously impaired.

DR. J. MADISON TAYLOR, of Philadelphia, had used thyroid extract in Graves' disease without any perceptible improvement. He spoke of a case occurring in a child two years of age.

DR. W. J. MORTON, of New York, believed that patients had been cured by the use of electricity. He had often seen recovery after three or four months' treatment. He preferred this to any other method.

DR. DERCUM thought it difficult to explain the favorable result occurring after operative measures, and mentioned an instance in which the gland was exceedingly small.

DR. W. A. HAMMOND, of Washington, asked if Dr. Morton had used any other remedy in conjunction with electricity. He had been accustomed to diminish the amount of fluids taken and to give digitalis or hyoscyamin, with satisfactory results.

DR. MORTON replied that he used electricity only.

THE PRESIDENT thought that many cases were curable, and referred to the case of a young woman in whom the disease developed rapidly after a sudden fright. She improved after prolonged rest in bed, subsequently married and gave birth to a healthy child, and completely recovered from her symptoms of Graves' disease.

DR. BOOTH, in closing the discussion, said that the alleged danger from the operation is not borne out by statistics. In his case the patient did well. Galvanism had been faithfully used for seven months without satisfactory results.

DR. FREDERICK PETERSON reported a case of exophthalmic goiter cured by thyroidectomy.

Improvement began immediately after the operation. Shortly after the operation there was diminution of the tremor. The exophthalmos was lessened. The subjective symptoms had disappeared. The tachycardia grew less and less. Five years after the thyroidectomy there was no proptosis whatever, no tremor, no tachycardia, no thyroid swelling, and in fact the patient was well, and had been able to carry on her hard work steadily ever since. The only remains of the trouble is a somewhat rapid pulse, which varies from 90 to 100.

DR. G. W. JACOBY and DR. F. SCHWYZER, of New York, read a paper entitled "Experimental Investigations on the Physical and Chemical Action of the Galvanic Current upon the Living Organism." Recognizing that our scientific comprehension of the electro-dynamic curative action of electricity has been obstructed by the direction as well as the manner in which electro-physiologic work has thus far been car-

ried out, it was hoped that this obstruction could be met by the study of the chemic and physical actions of the galvanic current upon the simplest form of the organism, the living cell. With a view to answering the question: "Does the galvanic current produce any discoverable changes, physical or microchemic, in the single cells of the body?" a series of experiments upon animals (frogs, rabbits and guinea-pigs) and man was undertaken. The certain and positive results thus far obtained were: 1. That by passage of the galvanic current the red blood-corpuscles under the influence of the positive pole swell up and become increased in size, while under the influence of the negative pole they become crenated and shrunken. 2. That two animals being fixed back to back, and a current passed through both from chest to chest, the entire blood in the animal acted upon by the positive pole will contain more than 20 per cent. less alkali than that of the animal which has been exposed to the influence of the negative pole.

While it is believed that the majority of cells in the human body are influenced by the cataphoric action of the galvanic current, it cannot be stated whether or not the physiology of the cells is thereby altered, and to what extent; on the other hand, the decrease of the alkalinity of the blood by means of the current must have a very great influence on cell-life. This is shown by other experiments made upon spermatozoa. This influence consists in the production of a marked functional activity in the neighborhood of the kathode, on account of the slightly increased alkalinity, and reduced functional activity at the anode in consequence of decreased alkalinity.

DR. W. J. MORTON said that as for the results obtained, attributed to cataphoric effect, they seemed to be subversive of what is usually believed and taught, for it has thus far been accepted that the tissue at the negative pole had its fluidity increased, while that at the positive pole had its fluidity decreased.

Again, as to the action of the galvanic current in producing acidity of tissue at the positive-pole region and alkalinity at the negative, he welcomed the experimental evidence that this effect extended widely into the intrapolar region, and thus influenced the irritability of tissue as an anelectrotonus and katelectrotonus. This physical explanation of physiologic states had first been made by Von Humboldt, who attributed the increased response to the excitation of the negative pole to the increased alkalinity produced in an already alkaline tissue by that pole, and the decreased response to the positive pole to the fact that that pole produced an acid reaction. Dr. Morton would go further than this, and had already suggested as an explanation of the increased response to the positive pole in the reaction of degeneration of Erb, that the muscle degenerating had an acid reaction, and therefore responded most vigorously to the acid, viz. the positive pole.

As to alkalinizing the blood electrically, we might perhaps do this better by alkalies administered by the mouth, but we could not by drugs do what Dr. Jacoby had done and render a tissue less alkaline or more acid. Therefore the local action of electricity in this respect could not be otherwise effected.

DR. WILLIAM C. KRAUSS, of Buffalo, N. Y., presented a Neurological Percussion-Hammer. In appearance the hammer resembles the ordinary percussion-hammer, such as is employed more especially on the Continent, and particularly in France and Germany. It is, therefore, primarily a hammer, and for the neurologist may be used for testing the tendon and muscular reflexes, and for percussing the spine and head. The handle, being made of hard rubber, becomes warm on friction, while the head, being made of metal, remains always cold, thus affording the means for examining for thermo-anesthesia. The cap on the small end of the hammer-head is removable, and exposes a triangular-shaped spear about one-sixth inch long. The other end of the head has the rounded rubber-point, thus furnishing a sharp and dull point for examining for anesthesia. The spear is divisible, one-half remaining fixed in the hammer-head; the other half slides upon a scale graduated in millimeters and inches, forming part of the handle of the hammer, making an excellent esthesiometer. On replacing the cap, and removing the cap at the large end of the hammer, a camel's-hair brush is exposed, giving a soft and the metallic end a hard surface for examining sensation. Thus we have in one instrument nearly all the apparatus necessary for making an examination of a nervous case.

DR. J. MADISON TAYLOR, of Philadelphia, showed a neurological percussion-hammer, devised seven or eight years ago, and which has been in constant use in Philadelphia ever since. The instrument was described and illustrated in an article by Dr. Weir Mitchell in THE MEDICAL NEWS, January 23, 1888. The value of this little instrument resides in the fact that it is very useful, both in its special function of eliciting muscular reactions, knee-jerks, etc., for which it is particularly adapted, and also as a percussion-hammer to explore the chest, which purpose it serves unusually well.

It consists of a triangular piece of soft rubber, about an inch and a half on the base and two inches on the perpendicular of an equilateral triangle. It is held at its middle part by a band of metal surrounding it, and the handle is a direct extension of this band, all made in one casting. The original instrument had the handle upon the edge, which then left the general outline of a hatchet or Indian's tomahawk. Since then this handle is sometimes placed upon the middle plane of the rubber piece, the handle then dependent from this center giving the appearance of a hoe or an adze.

The important factor is that the rubber is quite soft, is rounded on the edges, and is about the thickness of the human finger, which it is devised to simulate. In striking a blow upon a tendon the rounded edge, very like the surface of an ordinary finger, comes in contact with the tendon, as, for instance, that of the knee, and the impact is comprehensive, strong, but painless. The pointed end is about the size and shape of the end of a finger, and is likewise comfortable in contact and efficient in eliciting muscle-jerks and reactions upon the surfaces, or is also useful in reaching for deep tendons, as the biceps-tendon, etc. Again, this surface is comfortable when the finger is used as a pleximeter. Indeed, a hammer is often much better than a striking finger, because the quality and direction of the blow can be much more exactly governed, and the general weight and size of this little instrument has been found most satisfactory in this particular.

DR. V. P. GIBNEY, of New York, read a paper entitled "Non-Operative Treatment of Metatarsalgia." He offered as a subtitute for excision of the distal end of the fourth metatarsal bone or the branch of the peroneal nerve, a boot constructed on a Spanish last, with a heel a combination of an English and a French heel. The boot thus built transfers the weight from the ball of the foot to the plantar region just back of the ball of the foot and to the heel and that portion of the shank just anterior to the heel. The chief point insisted on was a snug fit around the instep shank, and a rather loose toe-portion. A number of successful cases were reported.

DR. CHARLES K. MILLS, of Philadelphia, had been in the habit of recommending a shoe similar to that advised by Dr. Gibney. Some cases, however, cannot be relieved by any form of shoe, as a neuritis may have become established. Operative means would then become necessary.

DR. PUTNAM considered it of value to make a carefully adjusted opening in the inner sole of the shoe.

SECOND DAY—MAY 31ST.

DR. W. J. MORTON, of New York, presented some microscopic slides showing the new neuroglia-stain of Weigert. The neuroglia-fibers are stained blue, while the nerve-elements are either not stained at all, or at least very faintly. The medullary sheaths do not accept the stain, and thus the field is left clear for the differentiation of neuroglia-fibers.

DR. MORTON also read by title a paper entitled "A Case of Multiple Neuromata, with Exhibition of Microscopic Sections of a Large Neuroma removed from the Ulnar Nerve."

The tumor developed upon the ulnar nerve about half way between the elbow and the wrist, and was about the size of a hen's egg. Cutting down upon the mass with a view of severing and suturing the nerve, if necessary, or of dissecting out as far as possible its strands, the tumor was found lying quite free, except for a few thread-like adhesions within a capsule, and the nerve traversed this capsule from end to end in five separate bundles. It was, therefore, possible to enucleate the tumor and replace the nerve-strands without the slightest injury to the latter. The tumor was a myxo-fibroma.

DR. GUY HINSDALE and DR. J. MADISON TAYLOR, of Philadelphia, read a paper on "Crossed Knee-Jerk," based on studies of over one thousand cases of nervous disease observed at the Infirmary for Nervous Diseases, Philadelphia, and the Institutions for Feeble-Minded Children at Elwyn, Pennsylvania, and Vineland, New Jersey. By the term crossed knee-jerk is meant that when the patellar tendon is struck the opposite leg is instantly made to approach its fellow; the phrase "in knee-jerk," or "contra-lateral knee-jerk" may also be used. The movement observed in the limb opposite to that of which the patellar tendon is struck is not an extension of the leg so much as an adduction of the thigh (vastus internus and crureus). The best attitude for eliciting the movement is by seating the subject at ease in a chair, with the body erect, and the knees ten or twelve inches apart, with the knee-joint at rather an obtuse angle, the feet being advanced a few inches. The phenomenon is observed in a small proportion of normal persons, and in from 20 to 30 per cent. of the cases coming to a clinic for nervous diseases. It is distinctly proved not to be due to a communicated shock or jar to the pelvis by reason of its absence in all cases of locomotor ataxia, and its production in favorable cases on suspending the subject from the floor and observing the adduction of the thigh on tapping the patellar tendon, or, as in one case observed, tapping the tendo Achillis.

The crossed knee-jerk is also found to be reinforcible. Reinforcement induces the movement in some cases in which it is not otherwise evident. A case was related in which a very slight tap on the patellar tendon caused violent contractions of both legs, so that the knees are brought together or cross over; a larger tap will cause, in addition, crossing of both arms in a sort of lock-spasm, requiring aid afterward in stretching out the limbs.

The reflex arc involved in movements of this kind is held to embrace the cerebrum.

DR. H. R. STEDMAN, of Boston, asked if this condition was not somewhat similar to the so-called allocheiria?

DR. WALTON had found not only the classic reflex, described recently by Remak, of toe-flexion on stroking the inside of the thigh, but had seen in cases of broken back both dorsal and plantar flexion of the toes on stroking various areas in the extremities.

DR. MORTON spoke of the application of faradism to the right sciatic nerve as having produced a reaction in the muscles of the left shoulder.

DR. GEORGE W. JACOBY referred to a paper read by him a few years ago, in which he had called attention to the phenomenon of irradiation of the electric current.

DR. MILLS believed that the best explanation would be forthcoming from a careful study of the distribution of cells and fibers in the cord and their relation to other parts of the system.

The PRESIDENT considered the title of the paper an unfortunate one, and did not look upon this phenomenon as a crossed knee-jerk at all, but as a contra-lateral muscular contraction. He thought its reflex character was quite doubtful, and that there was no difficulty in accounting for irradiation on anatomic grounds.

DR. DERCUM, of Philadelphia, exhibited a skull illustrating the ancient method of trephining.

DR. KNAPP, of Boston, read a paper entitled "Recurrent Oculo-motor Paralysis." He detailed the case of a man forty-one years old with some nervous heredity, who a year before coming under observation had had severe neuralgic pain over the left eye, with ptosis, external strabismus and numbness of the face, lasting for seven weeks. One year later he had intense pain in the left side of the head, with nausea and vomiting. There was complete paralysis of the left third nerve, with anesthesia of the nose and cheek on the left side, and paresthesia of the forehead. Photophobia was also present. The anesthetic region was extremely tender on pressure, and there was increased discharge from the left nostril. After two weeks the paralysis began to diminish, and after four weeks it had almost wholly disappeared, but the sensory symptoms still continued in a lesser degree. Statistics were given of forty cases, and of ten other cases of a doubtful nature. In only six cases has there been complete recovery from the paralysis in the interval between the attacks, and in four more the pupil remained dilated. In seven cases there was at first com-

plete recovery, but in the later intervals there was some paresis. The division of the cases into periodic and periodically exacerbating hardly seemed warranted, and although some of the cases resemble migraine the affection in most cases is not at all like migraine. Three autopsies have shown lesions involving the nerve, and most cases are probably due to such lesions.

DR. MILLS related that he had observed several cases of recurrent ocular palsy, with involvement of the fifth nerve. He had also seen cases of recurrent facial paralysis. The only probable explanation in most cases is that of organic lesion. He thought Knapp's cases were probably due to a lesion of root-fibers.

DR. MORTON PRINCE agreed with Dr. Knapp in believing that these cases were caused by organic lesion. He believed that pain, as a localizing symptom, possessed very little value. He would rather depend upon motor and sensory paralysis.

DR. WALTON thought that all cases should not be classed together. While many were of nuclear or basal origin, possibly some of the less grave cases were due to recurring edema or possibly vascular disturbance at the cortex, which would probably explain the coincidence of motor and sensory disturbance. Possibly some cases were allied to the severer form of hysteria.

DR. KNAPP, in closing the discussion, said that there was no case of complete recovery on record in which there had been both motor and sensory involvement. In cases of syphilitic origin, in which only one or two branches were involved, the lesion was more likely to affect the nerve after it had left the pons.

DR. CHARLES K. MILLS, and DR. JOHN ZIMMER, of Philadelphia, presented a paper entitled "Circumscribed Softening of the Pons, the Internal Capsule, the Caudatum, and the Lenticula in the same Case." This case presented two limited lesions of unusual interest—one in the pons, and a second involving the internal capsule, a small segment of the caudatum and the lenticula. The pontile lesion was accurately located a week before the death of the patient. The patient, a woman, forty-two years old, had a previous history of alcoholism and of acute articular rheumatism. A presystolic mitral and a systolic aortic murmur could be heard. For eight weeks previous to her admission she had had almost constant headache, worse at night; and on the day before was attacked, without loss of consciousness, with vertigo, double vision, and paresis of the right arm and leg. There was slight impairment of mental action, marked somnolency and imperfect articulation. At rest, the right eye turned strongly to the right, while the left was not deviated. Both eyes could not be turned together to the left. The lateral movement of the left eye to the right was also impaired, and slight nystagmus of both eyes was present. The lids of the left eye could not be brought fully together. Right facial paresis was present, but the tongue was not deflected from the median line. The tendon and muscle phenomena were much exaggerated in the paretic limbs. Anesthesia could not be discovered in any portion of the body. For a few days the patient improved considerably. The loss of power in the leg largely disappeared, and paresis of the face-muscles was only noticeable on smiling, but the woman remained totally unable to turn the eyes to the left beyond the median line. She slept or seemed to sleep much during this time. Her temperature fluctuated slightly below normal.

About eleven days after admission she had a second apoplectiform attack. She was now totally unable to articulate, but understood what was said. She was also unable to expectorate, and there was interference with swallowing. She fell into a stuporous condition, with eyes fixed in the mid-position; the conjunctival and other reflexes were obtunded; the right pupil was smaller than the left; the face was drawn to the right, and the contents of the bladder and bowel were evacuated involuntarily. The woman died between four and five days after this second attack.

The autopsy revealed circumscribed softening with hemorrhagic infiltration. The lesion reached to within 1.5 mm. of the ventral surface of the pons; laterally extending to the raphé, and about the middle of the pons slightly across the mesial line. The area of softening became smaller and more deeply situated as it approached the post-oblongata, which it almost, but not quite, reached. A trans-section through the horizontal furrow, separating the pons and post-oblongata, showed perfectly normal structure.

The second lesion was revealed by a vertical trans-section of the right basal ganglia and capsule. The widest portion of the lesion corresponded to the plane of the cephalic extremity of the thalamus. It was about 17 mm. in its antero-posterior extent. The heart presented valvular lesions, and the kidneys, spleen and lungs pathologic conditions.

The pontile lesions in this case were of unusual interest in the study of the nuclei and root-fibers of the facial, abducens (external oculo-motor), and third nerves (common oculo-motor); and particularly with regard to connections of the facial and abducens. The lesion probably involved the root-fibers of the abducens, the fibers connecting it with the facial fibers or nucleus. The position of the nucleus was such as not by any possibility to involve the cell-nests of these nerves. The lesion involved the crustal portion of the pons, including a portion of the pyramidal tracts and the deep transverse fibers. The lemniscus, central tegmental tract and the structures of the tegmentum in general, probably escaped. The case was also of interest with reference to the question of the partial decussation of the facial root-fibers.

The lesion of the internal capsule was localized about the genu, probably involving the geniculate and speech tracts; the former, as is well known, including the cortico-bulbar bundles for the inferior facial, motor trigeminal and hypoglossal nuclei.

DR. WHARTON SINKLER, of Philadelphia, read a paper entitled "Lesion of Thalamus; Death from Intestinal Hemorrhage." He reported the case of a man, 67 years old, who had worked for many years in a stone-quarry, and had received frequent slight injuries to the scalp, in consequence of being struck by fragments of stone. On one occasion, after having been exposed to the sun, he was suddenly taken ill, and had to be removed to his home in an unconscious condition, where he was seized with convulsions, which lasted for the greater part of two days. After a month he was able to resume his work; but two weeks later he began to have epileptiform convulsions, which recurred at irregular intervals of from one to two a week. The seizures were always preceded

by an olfactory aura, the patient observing the smell of burning sulphur. After a few months the man had maniacal attacks after his fits.

The attacks of epilepsy were of the precursive form. In them the man imagined he was pursued by devils, and would run violently. After one attack the temperature rose, without any discoverable physical cause. The intellectual powers failed; and the man gradually fell into a somnolent condition, which lasted for nearly three weeks, at the end of which time he was suddenly, without premonitory sign, seized with intestinal hemorrhage of a profuse character, and from which he died in about twelve hours.

At the autopsy, the mucous membrane of the colon was found to be softened and deeply injected, but no lesion was found in the way of an ulceration or rupture of a vessel which would account for the hemorrhage.

The brain showed marked evidence of an old leptomeningitis over the left hemisphere, and there was atheroma of the vessels of the base. In the posterior right thalamus there was found a small area of softening. It was about one-third of an inch in length by one-fourth of an inch in its transverse diameter. No other coarse lesion could be found in the brain.

DR. C. L. DANA, of New York, presented a paper entitled "Cerebral Hemorrhage, its Cause and Premonitory Symptoms, together with a Report of One Hundred Consecutive Cases of Apoplexy, with Hemiplegia, and Seventy-nine Cases of Apoplexy, with Autopsy."

Of one hundred non-fatal cases thirty-six were due to syphilis. The special characteristics due to syphilis are that the cases occur in early life; that the lesions are often multiple in character; and that the pathologic condition underlying them is usually thrombosis and softening.

So far as Dr. Dana's experience and records went, cerebral hemorrhages are rarely repeated, and it seems as if in many cases the rupture of an artery changed the vital conditions, as it certainly does the personal habits, so that the attack exercises a conservative influence upon the individual, and actually tends to prolong life.

DR. E. D. FISHER, of New York, read a report of 77 cases; 51 had one attack; 16 two attacks; 9 had three and 1 had six attacks. All are still living. The average age at which the first attack occurred was $44\frac{6}{11}$ years. The longest duration since the attack was twenty-two years.

DR. WILLIAM BROWNING, of Brooklyn, read a paper entitled "Lumbar Puncture for the Removal of Cerebro-Spinal Fluid." He reviewed the main points in this recently devised operation. Brief notes of a few cases were given, as well as directions for its performance. The following conclusions were reached: 1. The method is simple, easily practised and rather attractive. 2. In itself it is usually without danger. 3. By it we certainly can draw off cerebro-spinal fluid. 4. The quantity removed at short sittings has been from one to one and one-half ounces in adults. 5. This, without doubt, represents the amount of free fluid usually present in the lower vertebral canal even when occluded above. 6. In internal hydrocephalus the relief, if any, is but very temporary. In the common form due to tuberculous meningitis the result is not worth the trouble, while in the closed or sacculated forms it must rather do harm than good. 7. As a diagnostic means, *e.g.*, in suspected meningeal hemorrhage, it is valuable. As an index of pressure it may also be worth noting. 8. It is worth further trial: (*a*) As a passing relief in brain-tumors not complicated by hydrocephalus; (*b*) as a substitute for trephining in progressive dementia; (*c*) in certain spinal troubles; (*d*) and possibly as a means of applying medication directly to the spinal meninges. 9. In conclusion it may be said that while admissible in all cases of brain-pressure, there is as yet no established indication for this procedure except for diagnostic purposes.

DR. MILLS said that all operations of this kind were unphilosophic and would accomplish nothing, as the fluid reaccumulates. The same may be said of hydrocephalus. Some good may be done when the fluid is either blood or pus, otherwise the operation is not indicated.

DR. DANA had utilized this method in three cases of alcoholic meningitis (in the so-called "wet brain"). Two recovered and one died. In the adult the operation is difficult. He agreed with Dr. Mills as to its indications and utility. He believed that the operation possessed at least some rational foundation.

DR. THEODORE DILLER, of Pittsburg, read a paper entitled "Non-Operative Treatment of Brain-Tumors." He took the ground that not all brain-tumors which could be localized should be operated on. He cautioned against regarding as successful those operations that merely succeeded surgically. The obstacles in the way of a complete success are many, and the results are disappointing in spite of the rich and growing knowledge of localization. Operations should not be undertaken unless the patient was getting worse in spite of medical treatment.

DR. STARR spoke of the case of a man with a doubtful history of syphilis and all the symptoms of cerebral tumor. Mercury was used and potassium iodid was given in doses of 300 grains daily. There was a marked improvement in all symptoms, and it seemed to be a case cured without operation. The patient died suddenly, and at the autopsy a cysto-sarcoma was found without any evidence of gummatous infiltration.

DR. PUTNAM believed we should only operate when there were definite indications.

DR. SINKLER mentioned the case of a man with Jacksonian epilepsy and no history of syphilis. Two years later symptoms of tumor were present. Mercury and iodid were used, but the man became progressively worse. An operation was performed, but no tumor could be discovered. The wound healed well. Since then the patient has improved steadily in all symptoms.

DR. JACOBY said there was a class of cases presenting all of the symptoms of tumor which get well without operation. He cited the case of a man with many of the symptoms, excepting optic neuritis, in which he was unwilling to make a positive diagnosis. The plasmodium malariæ was found in his blood, and he made a complete recovery under large doses of quinin.

DR. SACHS stated that the results after operation are often disappointing, it may be on account of the delay in operating. He related an instance similar to that of Dr. Starr. At the autopsy there was found a typical glioma. The symptoms had entirely disappeared for several months. In another case with symptoms of tumor, iodid had been used, but the symptoms subsided after thorough mercurial inunction.

Dr. W. M. Leszynsky, of New York, presented an electrode which had been specially constructed with a view to its usefulness in diagnosis.

Third Day—June 1st.

Dr. Henry R. Stedman, of Boston, read a paper on "The Treatment of Convalescence and the After-care of the Insane." He pointed out that the proper conduct of convalescence is vital to mental health. Instances of abrupt recovery with almost no convalescent stage are rare. Although such an event may happen in chronic cases, it occurs, as a rule, in those of short duration—notably confusional insanity and the toxic and neurotic insanities. Lucid intervals or spurious convalescences differ often in no respect from genuine recovery, with the single and essential exception that the sleep does not improve, or becomes worse. This is a valuable indication in the prognosis of permanent return to reason. To the cardinal signs of convalescence should often be added the disappearance of decided fear of a return of the attack and dread of the stigma to follow. It is important to be informed regarding normal and usual physical troubles of the patient, as their reappearance is another and valuable indication of recovery; so, also, a knowledge of the sequence of immediate prodromata of an attack. They are often repeated in reverse order while the patient is getting well. Complete mental rest during menstrual epochs is to be recommended, and application of the mind, even to a slight degree, in study or other work, is equally to be deprecated. Early discharge from the hospital, or from special care away from home, is, as a rule, to be advised against, especially in cases of melancholia with a history of suicidal attempts and after acute mania, the most exhausting form of insanity, and one that leaves the patient particularly susceptible to slight influences for long time.

On the other hand, early removal should frequently be advised in other cases convalescing from melancholia, particularly when homesickness is a marked feature, and occasionally when there is refusal of food. Certain cases of mild mania, also paranoiacs who are independent in the hospital and actively oppose treatment, are steadied by outside life. A change also works well until its novelty has worn off. The first year or so after recovery is a very critical time.

The statements made applied chiefly to well-to-do patients. There is practically no provision outside of hospitals for the after-care of the pauper insane, and practically little advice or other help is given those unfortunates on leaving.

These facts and others have led to the formation in France of protective societies, called *Societies of Patronage*, under official auspices. Their duties are to aid convalescent or recovered pauper patients by gifts of money, clothing, and tools, redemption of articles in pawn, payment of rent, admission to convalescent-homes in cottages intermediate between confinement and complete freedom, or in hospitals or houses of refuge; securing situations for them, and, finally, their supervision wherever employed. This work continues during the first month or two after the patient's discharge. Similar societies or means of relief have been formed in England and Scotland. There could be no better work on the score of both humanity and public economy than the adoption in this country of similar means for the prevention of insanity.

Dr. E. D. Fisher expressed the opinion that patients left the hospital too early. In cases in which they are over-sensitive regarding their previous incarceration, something must be done to care for them and obviate a relapse. He was in favor of establishing convalescent-homes for such patients, and spoke at length in confirmation of the views expressed in the paper.

Dr. Dercum stated that when the element of exhaustion was a prominent causative factor, the patient required detention and care much longer.

Dr. Starr was glad to know that Dr. Stedman favored the earlier removal from asylums of melancholics. One of the chief difficulties was in controlling the family, who did not know how to manage the patient after his return.

Dr. Dana said that the subject was of great economic as well as medical importance, and suggested that a committee be appointed to investigate the matter.

The suggestion was then presented in the form of a motion, which was carried.

The President appointed as a committee Drs. Stedman, Dana, and Dercum.

Dr. Burt G. Wilder, of Ithaca, exhibited a suicide's brain with two pistol-ball wounds, together with a dozen photographs of various aspects, and blackboard diagrams of the left side and of a trans-section at the level of the fatal wound.

A dentist, thirty-five years old, was found in his office dead, with a 22-caliber revolver clasped in his right hand. There were two bullet-holes; one in the middle of the forehead, the other in the right temple, neither ball having emerged.

The first ball, presumably deflected by the skull, passed caudo-ventrad to the cranial floor and was reflected dorso-caudad at nearly the same angle to a point just cephalad of the precommissure, where it lodged, having merely abraded the mesial surface of the left frontal lobe. The second ball entered at the right subfrontal gyre, passed obliquely sinistro-caudo-dorsad, tore the callosum and intervening structures and emerged in the second left central fissure. As there was no suspicion of foul play, and documents in the handwriting of the deceased declared his intention to commit suicide, the case exemplifies the possibility of two self-inflicted bullet-wounds of one brain. The fissures present many peculiarities. The most perplexing is the apparent coexistence of two central fissures on each side. Only two such cases have hitherto been recorded, by Giacomini and Calori. Suicide had been committed by a grandfather and one uncle, and attempted by another uncle.

Dr. Dana said that he had no doubt that the anterior of the two fissures was the fissure of Rolando. The interruption of this fissure on one side by a bridging convolution was extremely rare and very interesting. The brain presented a unique fissuration. Dr. Dana could not understand how a primary fissure like the Rolandic could be doubled in any event, and was skeptical of the genuineness of reported cases.

Dr. Edw. B. Angell, of Rochester, read a paper entitled "Case of Infantile Hemiplegia, Imbecility, and Epilepsy; Craniotomy; Marked Improvement." The salient features of the case were a severe forceps-delivery,

succeeded by double ptosis, occasional tonic spasm of the right arm, contracture and hemi-palsy of the right hand. Physical and mental development was slow, and epilepsy, with from three to five seizures daily, supervened three months prior to the operation. At the time of examination the child was partly imbecile. The skull-measurement gave a cranial index of 0.77; the palate was high-arched, the teeth jagged, and the right wrist and hand, much smaller than the left, were helpless. A diagnosis of pressure in the neighborhood of the hand-center of the left motor area, due either to a hemorrhagic plaque or cyst, was made. Craniotomy was decided upon as a tentative measure, with a view of relieving pressure and consequent symptoms, while avoiding the greater risk of opening the dura necessary to a removal of the cyst-wall. Upon removal of the trephine-button a subdural hemorrhagic cyst was found. The cranium overlying the cyst had become much thinned, and was freely cut away beyond the limits of the cyst. By an aspirating needle a half-dram of fluid was removed; otherwise the dura was not injured. The scalp-incision healed readily, but through an over-tight bandage edema developed, which by the eighth day caused sufficient pressure to develop a severe convulsion and high temperature. With the remedying of this condition marked improvement in all the symptoms ensued.

Three months after the operation there had been no recurrence of the epileptic attacks, while there was a commensurate improvement in the mental and moral condition.

DR. MILLS considered it presumable that the cyst which was not opened was a porencephalic cavity, and that opening and draining it would have been useless.

DR. PUTNAM agreed with Dr. Mills. He said it was rarely possible to remove a cyst satisfactorily. In a case seen by him the cyst was tapped and the drain left in. Improvement followed.

DR. W. A. HAMMOND spoke of two cases in which craniotomy was performed. One was eighteen years of age, and became an imbecile as a result of an injury to the head. He remained in this condition four years. After operation there was improvement at the end of two months. At the end of a year the improvement was marked. In the other case of a similar character the operation was followed by improvement.

THE PRESIDENT said that cysts differed in character. The superficial cysts were due to meningeal hemorrhage during labor, and could be satisfactorily treated by operation.

DR. ANGELL, in closing the discussion, said this was not a case of porencephalus, but an arachnoid cyst from a meningeal hemorrhage.

DR. CHAS. HENRY BROWN, of New York, read a paper entitled "Infantile Amyotrophic Lateral Sclerosis of the Family Type." He reported the case of a boy, fifteen years old, who presented marked emaciation, particularly in the upper part of the body, and paralysis and atrophy of all the facial muscles, excepting those of mastication. Fibrillary twitchings were present all over the body. The superficial and deep reflexes were active. Ankle-clonus was demonstrable. There was double lateral curvature of the spine. Mentally the boy was fairly bright. He cried readily and was amused at trifles. He was microcephalic, and acted and appeared like a child of ten. There were evidences of a general arrest of development. The case is considered as belonging to one of the family types of infantile progressive bulbar paralysis, plus the same implication that is found engrafted upon the progressive poliomyelitis of adults, and which gives us amyotrophic lateral sclerosis. In muscular myopathies the respiration is not involved; the upper facial muscles are usually unaffected; and the "tapir mouth" is not observed. The atrophy is more irregular, more nearly bilateral: that is, it is worse on one side. The electric reactions are not of especial importance in diagnosis. In some reported cases of infantile progressive bulbar paralysis they have been normal; in others there has been reaction of degeneration.

To place this case among the scapulo-humeral, or facio-scapulo-humeral types of muscular atrophy is out of the question. Though the neck is much thinned, the scapulo-humeral group and the back muscles are generally the best the patient has. What muscles he does possess are active, and the exaggeration of reflexes, the fibrillary twitchings, and the retractions of tendons, present though slight, preclude a peripheral origin of the disease. As far as is known, no case of the kind has ever been reported and diagnosticated as infantile amyotrophic lateral sclerosis of the family type. In all the cases reported of these bulbar diseases belonging to groups of family types there has been marked difficulty of respiration and special implication of the upper branch of the trifacial nerve.

DR. KNAPP showed a microscopic specimen from a case of amyotrophic lateral sclerosis which occurred in a man fifty years of age. The disease progressed very rapidly. Death took place at the end of fourteen months of broncho-pneumonia. There were no bulbar symptoms. The section presented showed marked vascularity in the sclerosed portions of the cord.

DR. PUTNAM reported an analogous case of bulbar paralysis in a young child.

DR. PRESTON, of Baltimore, had seen the case of a child two years of age in whom spastic symptoms such as exaggerated knee-jerk and ankle-clonus developed soon after an attack of acute poliomyelitis.

DR. F. X. DERCUM and DR. W. W. KEEN, of Philadelphia, presented an article entitled "Two Cases of Ingravescent Cerebral Hemorrhage Treated by Ligation of the Common Carotid Artery." In the first case reported the symptoms pointed to a slowly progressive capsular hemorrhage extending over three days before ligation of the common carotid was resorted to. The symptoms were steadily progressive and threatened a fatal termination. Ligation of the carotid, as proposed by Mr. Horsley, promptly arrested the symptoms, and the man made an excellent recovery. Months afterward merely symptoms of a spastic hemiplegia persisted, but they were not very marked.

In the second case the symptoms pointed to a progressive hemorrhage occupying eight hours. The patient's condition was so grave at the time of the operation that little was hoped from it, and indeed it proved useless, the patient dying several hours afterward.

Dr. Dercum pointed out that the class of cases in which benefit is to be hoped for from ligation of the

common carotid are those in which the hemorrhage is decidedly ingravescent in type. He also dwelt upon the difficulties of a differential diagnosis between hemorrhage and thrombosis in such cases, and pointed out that even in case of an error in diagnosis it could not be said that the operation involved additional risk to the brain.

Finally he suggested that instead of ligation of the vessel the expedient of compression of the common carotid should be tried in every case of apoplexy as soon as the physician arrived. A surgeon is not always at hand, and besides, compression of the carotid is so simple a procedure that a bystander can easily be instructed in its application.

Dr. Frank Fry, of St. Louis, knew of several instances in which the operation had been done. All proved fatal. He believed that the operation was not indicated or justifiable.

Dr. Knapp believed that the neurologist does not see the case until it is too late to make a satisfactory diagnosis.

The President thought the chief difficulty was in diagnosis and that the hemorrhage was usually a self-limited one.

Dr. Dercum, in closing the discussion, said the operation was only indicated when the diagnosis of ingravescent apoplexy was defined.

Dr. W. A. Hammond, of Washington, read a paper on "Merycism." He reported the case of a young man whose mental condition was impaired, and who was also the subject of merycism.

No special treatment was undertaken to correct the merycism, but the patient was trephined for the purpose of improving his mental condition. There were no unusual features connected with the operation, but the regurgitation after meals did not occur till the fifth day, when there was a slight return. Eight days later a button was removed from the corresponding part of the left side of the skull. From that time (about ten months ago) to the present there has been no regurgitation. Whether the cure of merycism in this case was directly due to the operations on the cranium, or was the result of the mental improvement, is a question which it would be difficult to answer.

Dr. Knapp referred to two cases that had come under his notice. Both were in physicians in good mental condition. He thought a distinction should be made between congenital and acquired merycism.

Dr. Lloyd believed that some cases should be considered as a neurosis allied to hysterical vomiting, such as regurgitation from the esophagus.

The President had seen a man who had conquered the habit by the exercise of his own will. His views were in accord with those expressed by Dr. Lloyd.

Dr. Hammond said that acquired merycism was always due to overloading the esophagus and to the bad habit of rapid eating. He thought it extremely doubtful as to its being a neurosis.

Dr. J. Hendrie Lloyd, of Philadelphia, exhibited a large number of sections from the mid-brain, pons, medulla, and spinal cord of a case of chronic chorea.

The following gentlemen were elected to active membership: Dr. Ira Van Gieson, of New York; Dr. E. B. Lane, of Dorchester, Mass.; and Dr. E. D. Bondurant, of Tuskaloosa, Ala.

The following papers were read by title: "Acute Angioneurotic Edema," by Dr. H. M. Bannister, of Kankakee. "Present Hospital Care of the Insane," by Dr. S. B. Lyon, of New York. "The Genesis of Hallucinations, Illusions, and Delusions," by Dr. H. A. Tomlinson, of St. Peter, Minn. "A Case of Acromegaly," by Dr. H. T. Pershing, of Denver. "Significance of Exaggerated Knee-jerk and Ankle-clonus," by Dr. G. M. Hammond, of New York. "Report of a Case of Spinal Syphilis and one of Intra-cranial Syphilis," by Dr. L. C. Gray, of New York. "Remarks on Cortical Sensory Localization," by Dr. Charles K. Mills, of Philadelphia. "Traumatism as a Cause of Locomotor Ataxia," by Dr. Morton Prince, of Boston. "Observations upon an Anencephalic Monster," by Dr. E. B. Angell and Dr. Henry Elsner, of Rochester. "Cerebral Edema," by Dr. George J. Preston, of Baltimore. "Gastro-intestinal Neurasthenia," by Dr. L. Weber, of New York. "A Study of the Temperature-sense," by Dr. W. H. Riley, of Battle Creek. "Aphasia following Acute Infectious Diseases," by Dr. P. C. Knapp, of Boston.

The following officers were elected for the ensuing year: *President*, Dr. Philip Coombs Knapp, of Boston. *Vice-Presidents*, Dr. F. X. Dercum, of Philadelphia, and Dr. W. A. Jones, of Minneapolis. *Secretary and Treasurer*, Dr. G. M. Hammond, of New York.

NEWS ITEMS.

The St. Louis Clinique has passed under the editorial control of Dr. Emory Lanphear.

Correction.—In the 16th line from the bottom of the first column of p. 31 of The News of July 14th, the figures 0.2 should read 0.02.

The Cholera is reported to be spreading with alarming rapidity in St. Petersburg. On July 14th, 218 new cases, with 69 deaths, were reported. During the week ending July 15th there were 875 cases, with 294 deaths. On July 17th, 196 new cases, with 79 deaths, were reported. It is announced that cholera prevails in Dantzic, in Prussia. It is also reported that cholera is spreading throughout the Chinese Empire, and that the government officials are suppressing the facts.

Joseph Hyrtl, the distinguished anatomist, died at Vienna, on July 17th, at the age of 83 years. He was Professor of Anatomy in the University of Prague from 1837 to 1845, when he was elected to a similar chair in the University of Vienna. He was the author of a "Manual of Physiological and Practical Anatomy," and a "Manual of Topographical Anatomy and its Applications."

The American Journal of Insanity has been sold and transferred to the American Medico-Psychological Association, of which society it will henceforth be the accredited organ.

The journal will be edited *ad interim* by a publication committee consisting of Dr. Edward Cowles, President, and Dr. Henry M. Hurd, Secretary of the Association, and Dr. Richard Dewey, with the last named in immediate editorial charge. The office of publication has been transferred to Chicago.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

ON LEAD-PALSY IN CHILDREN; WITH A REPORT OF THREE CASES.[1]

BY WHARTON SINKLER, M.D.,
OF PHILADELPHIA;
PHYSICIAN TO THE ORTHOPEDIC HOSPITAL AND INFIRMARY FOR NERVOUS DISEASES, AND NEUROLOGIST TO THE PHILADELPHIA HOSPITAL.

A CAREFUL search through current literature and the text-books shows great paucity of material in regard to plumbism in young children. In an admirable and thorough article on lead-poisoning, James J. Putnam[2] remarks that the justification for his article "is found not in the abundance but in the meagerness of the present accumulation of facts relating to children, and the importance of taking steps toward increasing it." I have been able to find no other cases besides those which Dr. Putnam has quoted in the complete table which he has added to his paper.

Wilson, in *Pepper's System of Medicine*,[3] says: "Lead-poisoning is an affection of adult life. Of 102 cases, two only occurred in individuals below twenty years of age."

D. D. Stewart, of Philadelphia, whose article on poisoning by buns colored with chrome-yellow attracted so much attention a few years ago, writes me that he made a thorough search through the literature of lead-poisoning when investigating these cases, and made notes of all nervous cases, especially those with brain-symptoms. He found many cases of cerebral disorders, like convulsions, which occurred in children, but none of paralysis. He also remarks that in German literature there are a number of accounts of whole families being poisoned by lead, through working and living in the potteries; but there are no records of palsies in children among these cases, though paralyses in the adults are common; and it was related that the children had headache and convulsions.

Among Stewart's cases of chronic lead-poisoning from eating the chrome-yellow buns, seventy-nine in number, there were many children. These were especially affected with convulsions, but there were no cases of wrist-drop or other palsies among them.

There is apparently no reason why children should not be as susceptible to lead poisoning as adults. Children are as much exposed to the dangers of lead-poisoning, except in those cases which occur among workers in lead—as, for instance, painters, manufacturers of white lead, and those employed in potteries.

There are many cases on record in which children of various ages have been seriously poisoned by the absorption of lead into the system. On the other hand, in epidemics of lead-poisoning from drinking-water, the proportion of cases in children is small. In the epidemic which occurred at Tredegar, England, reported by Dr. Brown, and quoted by Putnam, there were no serious symptoms in any person under eighteen years of age among fifty-two cases of well-marked lead-poisoning.

Putnam refers to another epidemic, in which thirty-eight persons were exposed to poisoning through drinking-water. Thirteen were affected; but no children were attacked, although there were eight among those who had been drinking the infected water. It is probable, therefore, that children are not so liable to lead-poisoning as adults; and this is no doubt due to the fact of their possessing more active powers of elimination; their greater bodily activity, and the greater energy of all of their secretions, causing the ready elimination of the lead from the system.

The sources of lead-poisoning are so numerous that it is remarkable that more cases do not occur. Drinking-water in cities, from passing through lead pipes, frequently becomes charged with lead. Lead is to be found in cooking utensils, in red rubber, which is sometimes used for making nipples for nursing-bottles, in the solder used in cans, coverings of sweetmeats, and in lead chromate, which is used in coloring toys, cloths, and other articles.

It is evident from the cases that have been recorded, in which a large number of persons have been equally exposed to the danger of lead-poisoning, that the degree of susceptibility varies, as but a small proportion of the persons exposed are attacked.

The symptoms of lead-poisoning in children which have been most frequently noted are disturbances of digestion, such as colic and vomiting; and the cerebral symptoms, indicated by headache, convulsions, and stupor. Chronic lead-poisoning is most likely to be manifested by a general loss of flesh,

[1] Read before the Association of American Physicians at Washington, D. C., May 31, 1894.

[2] Encyclopedia of the Diseases of Children, vol. iv, p. 615.

[3] "Chronic Lead-poisoning," System of Medicine, vol. v, p. 686

failure of appetite, and the earthen hue of the skin, with a jaundiced condition of the conjunctiva. In chronic lead-poisoning disorders of digestion are most common; constipation, attacks of colic and vomiting frequently occur, and there is other evidence of derangement of the stomach in the defective assimilation that exists. In other cases symptoms of kidney-disease are present; and it is well known that there is a form of nephritis due to accumulation of lead in the kidneys.

The symptoms dependent upon disease of the nervous system due to lead-poisoning are motor and sensory. The most common of these, of course, is paralysis of the extensor muscles of the forearms. In children, however, it is a noteworthy fact that the paralysis is as liable to affect the lower extremities as the upper. There are but few cases reported in which sensory disturbances have been met with in children. Cerebral symptoms are not uncommon in children. The lead encephalopathies in children have been frequently met with, especially, as already remarked, among the cases reported by Stewart, and Putnam refers to other cases.

The cases of lead-palsy in children which are quoted by Putnam are, first, that of a girl of eight years, reported in the *Lancet*, who suffered from paralysis of all four extremities, from the use of Sheffield drinking-water; and a similar case which was related by Seligmüller, who credits it to Duchenne.

H. D. Chapin[1] gives the history of two cases of lead-palsy in children. I will detail these at some length because of their curious similarity to the cases which I shall report later.

The father was a painter, and kept paint in the house, so that the children were constantly exposed to its influence. They enjoyed good health until December 25, 1882, when the room in which the children lived was painted. On January 1, 1883, one week later, F. W., aged seven years, was seized with abdominal cramps; on the next day R. W., aged five, complained of the same symptoms. The pain lasted for four weeks, and there was intense thirst. There was then pain and soreness in the legs, and the children were averse to walking. By the last of January they could not stand. They then improved somewhat, but during February another similar attack occurred. There was pain, followed by paralysis, and the loss of power lasted much longer than in the first attack. On May 3d, a third attack occurred in one boy, in which the hand was affected. The children now came under Dr. Chapin's care. They could walk with difficulty, and a blue line was observed upon the gums. They were lost sight of for a year, when they were examined again by Dr. Chapin. They were then worse than they had been before; they were utterly unable to walk, and pains throughout the body were complained of. The teeth were loose, the gums were spongy, and there was headache. The muscles did not respond to faradism or galvanism, but sensation was normal. The house in which they lived had been cleared of paint a year previous, and there was nothing to account for the repeated attacks.

The children were admitted to the hospital, and after treatment they improved greatly and were able to walk somewhat. An examination of the urine showed the presence of lead. There was partial paralysis of the anterior leg-muscles, and these showed the reaction of degeneration.

Dr. Chapin called attention to the striking resemblance of these cases to spinal paralysis of infancy. This writer also related the case of a child, two and a half years of age, in which a solution of lead acetate was applied to a splinter-wound. In four days both legs were paralyzed, but the child soon got quite well. This is, I think, rather a doubtful case of lead-paralysis.

The sixth case is reported by Putnam, from the records of the Children's Hospital, Boston, in which a girl of six years, after having been exposed to a freshly-painted house, had attacks of vomiting, which affected her at intervals for two weeks, followed by weakness of the legs, toe-drop, and waddling gait. A month later there was weakness of the fingers and the wrist; the extensor muscles were affected in both arms and legs, and the knee-jerks were absent. Two months later the paralysis had disappeared, but the legs were easily fatigued.

A seventh case has been reported by Miller,[1] in which a child of four years was poisoned by drinking-water; but it is merely observed that there was a paralytic state.

A case is reported by Letheby, in which a child of six years took lead acetate in doses of one-fifteenth of a grain two or three times a day for nine weeks. There was loss of flesh, colic, paralysis of the limbs, convulsions and coma, followed by death, which occurred two days after withdrawal of the medicine.

These constitute all the cases of lead-palsy in children that I have been able to find, except one reported by Suckling,[2] in a boy of fourteen years, who worked in zinc and lead for eighteen months, and who presented evidences of multiple neuritis, without other symptoms of lead-poisoning.

The following three cases came under my observation at the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases. The parents were healthy and had nine children. One child died of spinal meningitis at five years of age. It had from birth a large head. Another child died of

[1] Medical Record, New York, 1884, p. 546.

[1] New Orleans Medical and Surgical Journal, 1873, vol. i, p. 198.

[2] British Medical Journal, 1888, vol. i, p. 649.

convulsions at three years of age. Four other children are perfectly healthy, and the remaining three are the cases of which I shall relate the histories.

The father is a house-painter by occupation, and had his shop in the house in which he lived. The children frequently played about the room in which he kept his paints, and often got the paint on their hands and faces, and sometimes were seen to put it in their mouths.

CASE I.—Sarah McD., aged ten years and six months.

Previous history. Her health had always been good previous to the onset of the present trouble. She cut her teeth and walked at an early age, and never had any intestinal disorders.

She was brought for treatment to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, in July, 1889. About one month previously, she awoke in the morning with partial loss of power in the legs. She had fever of short duration, and there was constipation and some vomiting, but no colic. The weakness of the legs steadily increased, and pain in the legs was complained of. Four weeks later the arms became weak, and there was gradual wasting of all the limbs. The weakness and atrophy were most marked on the right side.

The child was treated as an out-patient by means of electricity, and in October, 1889, she had almost completely recovered the use of her legs. In June, 1890, she grew gradually weak for about a week. She then lost the power of standing, and could not use her arms. In this attack there was fever, vomiting, and constipation, but no colic. There were no convulsions, no coma, and no headache. On July 14, 1890, she was admitted to the hospital. Her condition was then as follows:

There was loss of power in all of the muscles of the legs, more or less complete; and there was complete wrist-drop and ankle-drop. The patient was unable to use the hands or arms, except that she could slightly move the arms at the shoulders. There was great muscular wasting, but no changes in sensibility. The patient's mind was clear, and her general health was good.

The electric examination showed absence of response to the faradic current in the extensors of the legs, thighs, and forearms, and diminished reaction in the flexors to galvanism.

The reactions to the galvanic current were as follows:

Right tibialis anticus and common extensors	R D
Right peronei	K cl > A cl.
Left tibialis anticus and common extensors .	K cl = A cl.
Left peronei	K cl > A cl.
Left forearm-extensors	R D
Right forearm-extensors	K cl > A cl.

The patient was treated with daily faradization and massage, and in about four months she was able to walk about and to use the arms freely. She was discharged greatly improved, November 8, 1890.

She was examined on May 17, 1894, and her condition was as follows:

Both feet are flat, and foot-drop is marked on both sides, when sitting. The left great toe is abducted, and all of the toes of the right foot are abducted, the great toe especially. This toe is also rotated to an angle of about 90°, so that its dorsal surface points laterally. The patient is unable to flex the feet. The left leg is a little smaller than the right. There is no wasting in the arms, and the muscular power in both is good. In walking, there is a tendency to walk on the toes, on account of a slight contraction of the tendo Achillis. The patient's general health is good, and the gums are free from discoloration or disease.

The eyes were examined by Dr. A. G. Thomson, who made the following report:

The pupils are equal, and react normally to light; the discs are a trifle red; the outlines of the discs are well marked; there is no lesion of the fundus; the muscular balance is good; the form and color fields are normal. V. = 20/20 with both eyes.

CASE II.—Harry McD., a brother of the preceding patient, was admitted to the hospital July 11, 1892. He was six years of age, was born normally, and was breast-fed. He began to cut teeth at the age of three months. He was healthy until the sixth month, when he had convulsions, which lasted three days. The spasms were general, but there was no subsequent paralysis. When sixteen months old he had entero-colitis. He began to walk at fifteen months of age. This child also had access to the room in which his father's paints were kept, and was frequently besmeared with paint. In November, 1891, he had an attack of fever accompanied by vomiting, loss of appetite, colic, and constipation. This attack lasted for about three weeks, when it was noticed that the legs and arms were weak. The arms could not be raised above the head, and the hands dropped at the wrists. There was loss of power in the legs, so that the child was unable to walk. Complaint of pain in the knees was frequently made. The legs and arms grew steadily thinner, and the muscular weakness increased.

On admission the child was pallid and thin. He possessed normal intelligence; his digestion, appetite, and bowels were in good condition. He was unable to stand, or to walk, and there was but little power in the muscles of the legs. The feet were in a position of ankle-drop, and attempts to flex the feet were futile. The arms could be moved slightly at the shoulders, but the power in the muscles of the arms and forearms was almost absent. There was complete wrist-drop. There was no facial paralysis.

Atrophy. There was marked wasting in the muscles of both arms and legs. There was no response to the faradic current; and there was great quantitative change in the extensors of the thighs, arms and forearms, to galvanism. R. D. was present in the extensors of the left leg, and in the extensors of the right leg. The knee-jerks were absent, and the arm-jerks were decreased.

The patient was treated with massage and electricity, and steady improvement took place; so that in five months he was able to walk about unassisted, but the toes were dragged and the feet

flapped in walking. The patient had gained flesh, and the color was good.

March 27, 1894. The condition of the boy was noted as follows: He walks with the feet far apart and the toes inverted. The left leg is much weaker than the right. The circumference of the right thigh is eight inches, of the left thigh eight and a quarter inches; that of the right calf is six and a quarter inches, of the left seven inches. The knee jerk is absent on both sides, and there is no reinforcement. There is left foot-drop, and the muscles of the leg of this side are markedly wasted. The left hand is weak, and there is atrophy of the thenar and hypothenar muscles. The elbow-jerks can be elicited.

The electric examination shows good response in the peroneal and calf muscles. The flexors of the thighs respond readily. R. D. is found in the tibialis anticus and extensor communis of both legs. The eyes show nothing abnormal.

Case III.—Eddie McD., aged three years, a brother of the two previous patients, was admitted to the hospital July 11, 1892. He had always been healthy up to the present trouble. He began to walk at about the age of two years, but only with assistance. It was then noticed for the first time that the right leg was weak and that the foot was dragged in walking. He complained of some pain in the right knee at the same time. The leg continued to grow smaller until his admission to the hospital.

On admission, it was found that both legs were weak and that there was complete wrist-drop. The extensors of the hands seemed to be the only muscles which were affected, as the arms could be moved in all directions. The electric examination showed reaction of degeneration in the muscles of both legs. The knee-jerks were absent on both sides. This patient also improved under the use of massage and electricity, and in five months he began to walk unassisted, but dragged the toes on both sides, more especially on the right side. The knee-jerks had returned and were slightly exaggerated.

March 27, 1894. The patient looks strong and ruddy. He runs about with freedom, but drags the right foot, and when lying down there is right foot-drop. The leg is wasted and there is inability to flex the foot. The thighs are each ten inches in circumference; the right calf is seven inches, and the left seven and a half inches. Sensation is perfect, and there are no trophic changes. The left hand is somewhat weaker than the right. The right knee-jerk is grossly exaggerated, but there is no ankle-clonus. The knee-jerk on the left is slightly exaggerated. The electric examination shows normal reactions in all of the muscles of the left leg and of the right calf. In the extensors of the right foot there is loss to the faradic current and reaction of degeneration.

In neither of these children was any blue line on the gums observed, or any diseased condition of the teeth or gums. The digestive organs were in fairly good condition on admission to the hospital, and although the children were thin and pallid, there was no distinct saturnine cachexia noticeable.

When the two boys were first admitted, an attempt was made to examine the urine for lead, but this was not successful. They were readmitted in March, 1894, and after potassium iodid had been administered for several days, the urine was collected, evaporated, and carefully tested for lead on three different occasions; but no trace of lead could be recovered. The investigation was made in a careful and thorough manner by Dr. J. E. Talley, the resident physician.

The significance of the presence of lead in the urine in small quantities is not great, when we consider the statement of Putnam, in the article already referred to, that Drs. Comey and Worcester had analyzed for him the urine of more than 150 persons living mainly in the neighborhood of Boston, and not presenting symptoms of lead-poisoning, and found traces of lead in about 25 per cent. of them. Dr. J. Dickson Mann[1] gives as the result of a careful study of two cases these conclusions: "That lead is slowly and more or less continuously eliminated by the bowels, and, *to a very much less extent*, by the kidneys; that when once deposited in the tissues it exists as a stable compound, over which drugs have little, if any power." He also asserts that potassium iodid has absolutely no power as an eliminant of lead, although he admits that it may be beneficial in some other way in cases of chronic lead-poisoning.

In the cases that I have related, the symptoms presented were those of poliomyelitis; indeed, when Sarah McD., the eldest child, first presented herself at the Infirmary, I believed the case was one of that disease; and when she returned a year later with a relapse, I regarded it as a remarkable instance of a second attack of infantile spinal paralysis. It was not until the second child was brought to me for treatment that I suspected some common cause for the disease, and thought that it might be one of those instances of epidemic poliomyelitis due to microbic infection.

On inquiring into the history of the children I found that their father was a painter, but the mother strenuously denied that they had been exposed to contact with the paints. When the third case was brought to me I asked my friend, Dr. J. H. Rhein, to visit the home of the children; and he discovered the fact that there was a great deal of white lead lying about, and that the children had frequently played in the paint room, and were often daubed with paint.

The resemblance of lead-palsy in children to poliomyelitis has been noted by several writers; and it seems possible that some of the cases that have been recorded as instances of poliomyelitis may have been due to chronic lead-poisoning.

[1] British Med. Journ., February 25, 1893.

The pathology of lead-poisoning in children is generally considered as consisting in changes in the peripheral nerves; and these alterations are very closely allied to those met with in the ordinary forms of multiple neuritis. There is good reason to believe, however, that in many cases of typical lead-paralysis the symptoms are due primarily to the direct action of the lead upon the muscles. It is also probable, and this is also suggested by Putnam, that chronic lead-poisoning may produce typical changes in the anterior horns of the spinal cord, and thus give rise to a poliomyelitis, identical in its symptoms with the acute, or, so to speak, idiopathic form of the disease.

SOME PHYSIOLOGIC EFFECTS OF MUSIC IN HYPNOTIZED SUBJECTS.

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HAVING been led during the past year by an interest in musical esthetics to an investigation of the expressive power of music, especially with reference to the Wagnerian music-dramas, I came upon certain results extremely interesting in their nature, and certainly valuable as contributions to our knowledge of musical effect. These were the result of experiments made to ascertain the physiologic and mental effects of music in subjects that had been put into a state of hypnosis.

It has long been known that music is capable of inducing changes in certain functions of the body, as the circulation, respiration, etc. The marked effects that musical sounds have sometimes produced in animals are also familiar. From the legends of Apollo down to physiologic experiments of modern times, records have been made from time to time of such observations, but the field has, apparently, appeared so little promising that scientific experimentation of any importance has not been done in this line. The majority of the observations recorded have been of a popular nature, in like manner noted, and are, chiefly, of little value. Occasionally these are collected, new facts added from the author's experience, and an attempt made to draw some sort of a conclusion or to arrive at some law of musical effect. Among the more important of these are: "Effets et Influence de la Musique sur la Santé et sur la Maladie" (Chomet). "Sull' importanza fisiologica e terapeutica della Musica" (Vigna). Also occasional articles appear in the medical journals upon the effects of music in disease, especially in abnormal mental conditions. But prolonged and careful investigation seems never to have been made in this direction, and the results of the recorded observations are practically of little importance.

While attending performances of Wagner operas at Munich and Vienna an observation of musical people who were deeply affected by the Wagnerian music led me to the thought that these musical "Schwärmer" in their state of musical *en rapport* were in a condition of self-induced hypnosis, and further observation tended to confirm this idea. In giving themselves up to the emotional effect of the music, these people were putting forward their subjective natures at the expense of their objective relations to the world: for the time, being in a state exactly analogous to the hypnotic state, if not really the same. From this it was but a quick passage to the thought that the power of music, whatever that might be, would be displayed and felt in its greatest and purest force in conditions of complete mental subjectivity, when all external connections and relations have been removed—a state in which nothing but the music would exist for the mind—that is, a complete hypnotic state.

At the first opportunity for making such experiments, the effect of music upon persons who had been put into the hypnotic state was tried with results of a very interesting and remarkable nature. After a great deal of research I have not been able to find elsewhere anything of the nature of these experiments, or to find anywhere records of such decided effects of music upon the physiologic functions of the body. These effects were so constant and so marked in all of the cases experimented upon that I consider them worthy of report.

The number of cases experimented upon is only seven, the small number being due to the reluctance of the average normal individual to be made the subject of hypnotic experiments; but these seven represented a wide range of individual character within limits apparently normal. Of this number, five were men, two were women. All were healthy and passed for normal individuals, and as possessing more than an average mental ability. No nervous or abnormal condition existed in any subject, and only one could be called emotional. Four were physicians and teachers, the others students. No one of them had either been hypnotized before or had been especially interested in the subject. All but one consented to the experiments with reluctance, and entered into the hypnotic state only because of the scientific aim. No one of the subjects was a musician in any practical way, and with but one exception they did not possess any marked development of the musical sense. In the normal state music produced no great emotional effect and no apparent physiologic action. All but one were more or less fond of musical sounds, and derived pleasure from the art.

As all experimental work in hypnotism is especially liable to error through deception, either voluntary or involuntary, on the part of the subjects,

especial care was taken to avoid this, although the character of the subjects was such as to make this precaution seemingly unnecessary. The experiments were made at different times, and no occasion was given for the imitation of results obtained in one subject by any of the others. Moreover, as the chief effects were physiologic, there was no chance for any such deception.

The subjects were hypnotized by the common method of fixing the eyes, passing the hands over the head and face, and at the same time making word-suggestion. After several trials they could usually be brought into a deep hypnotic state. This was done in a room containing a piano, the subject being placed in a chair or upon a lounge near the instrument. As soon as the hypnotic state was induced the following suggestion was given to the patient: "You are dead to everything else in the world except the music which is now to be played, and you will feel and know nothing but this music. Moreover, when awakened, you will remember what effect it has had upon you." A composition would then be played, and the physiologic effects noted; and then the subject was awakened and asked to give his experience, and it is the result of some of these experiments that I now wish to give.

Mr. M. is a physician, forty years old, fond of music and of rather emotional nature. He is easily hypnotized and passes quickly into the deepest hypnotic state. Wagner's "Ride of the Walküre" was played from the piano-score. The subject's pulse became at once more rapid, fuller, and of increased tension. As the music continued the pulse-rate rose from 60, his normal rate, to 120 per minute, becoming very quick, full, and of low tension; at the same time the rate of respiration was increased from 18 to 30 per minute. The subject's face showed great mental excitement; his whole body was thrown into motion; the legs were drawn up and the arms tossed in the air; at the same time the whole body was bathed in a profuse sweat. On being awakened the subject said that he did not perceive the music as sound but as *feeling*, and that this feeling was a sensation of wild excitement, brought on by "riding furiously through the air." This state of mind brought up before him in the most realistic and vivid manner imaginable the picture of the ride of Tam O'Shanter, which he had seen years before; that almost immediately this became real to him, and in some way he took part in the wild chase, not as a witch, devil, or as Tam, but in some way his consciousness was spread through every part of the scene, being of it, and yet also playing the part of a spectator.

Mr. O. is twenty-two years old, of average musical and emotional development. He is not so easily hypnotized as the first subject and does not pass into such a deep state. Under the influence of the same musical composition, the same effect upon pulse and respiration was produced, the former rising in rate from 70 to 120 beats per minute. The patient's expression remained unchanged, and no movement of the body was made. The skin was covered with profuse perspiration. When aroused the subject said that he had received a perfect sensation of "riding furiously through the air," and that this feeling had created for him a perfect picture of a horse-race in the most complete and startling detail.

The effect of this composition upon all was practically the same. All experienced a "feeling of riding," which almost immediately brought up from their past experience some association directly connected with this state of feeling; as, for instance, the physician had at one time been deeply impressed by a large picture of Tam O'Shanter's ride; the student had previously attended horse-races with great interest. Only one of the subjects knew of the connection of the music with the story of the "Walküre;" and to that one it always expressed and pictured the wild ride of the daughters of Wotan, the subject taking part in the ride.

It is here to be noted that the subjects could not tell afterward what music had been played to them while in the hypnotic state; and that the same composition played to them while in the normal state produced no impression comparable with that received in the hypnotic condition, and was without physiologic effect.

Appended are some pulse-tracings, taken from one of the subjects during the playing of the "Ride of the Walküre." Though made with a very poor instrument, they were taken under exactly similar conditions, and in the same period of time, and thus show the relative changes in the pulse-wave under the effects of music.

Tracing 1.

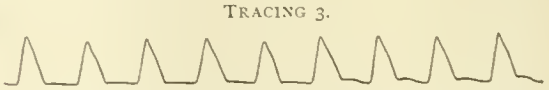
Pulse-tracing in normal condition; 70 beats per minute.

Tracing 2.

Pulse-tracing from same subject in hypnotic state; 82 per minute.

In all of the subjects, after being hypnotized, there was a slight increase in the rate, with a decrease in size and tension.

Tracing 3.



Pulse-tracing from same subject, in hypnotic condition, just after the playing of the selection from Wagner's "Die Walküre" had been begun; rate 95 per minute, high and quick, tension lowered.

As the weight upon the lever was kept in the same place for all of these tracings, the true character of the wave in Nos. 3 and 4 is not shown, as the

weight was not properly adjusted to the higher wave.

The fire-music from the closing scene of the "Walküre" also produced increased pulse-rate, with greater fulness and less tension. To one subject it brought up an image of flashing fire; to

TRACING 4.

From same subject, in hypnotic condition, during height of excitement, produced by same composition; 120 beats per minute, high, quick; tension low, marked irregularity in force. Tracing taken from the same person in normal condition, after violent exercise, shows almost exactly the same character.

another of waters rippling and sparkling in the sunshine; to another, of an ocean in which great breakers threw up glittering spray into the sunshine, the chief idea being in every case that of "sparkling."

The "Walhalla" motive, played in full, at first slowed the pulse and raised the tension; later, almost doubling the rate and lowering the tension. To the subject it gave a feeling of "lofty grandeur and calmness," and this in turn brought back the experience of mountain-climbing made years before, together with the mental state produced by the contemplation of a landscape of "lofty grandeur."

The music of the scene in which Brünhilde appears to summon Sigmund to Walhalla produced a very marked change in the pulse, which was made slow, irregular in rhythm, and very small. The respirations were decreased in rate, and became gasping; the face became pale, and covered with cold perspiration. The feeling described by the subjects was that of "death." No definite impression could or would be described.

The effect of single chords in certain relations produced wonderful effects. If during the height of excitement caused by the "Ride of the Walküre," in the key of B major, the chord of B minor was suddenly and loudly played, a most remarkable change was produced in the subject. In the case of the physician all excitement suddenly ceased, the subject's face became ashy pale, and covered with cold sweat; the pulse-rate dropped from 120 to 40 per minute, and became very irregular, soft, and small; the respirations were decreased in number, and became sighing in character. The whole picture presented was one of complete collapse, so that all who saw it were alarmed. On being awakened the subject said that he had been oppressed by a horrible fear, because "everything had suddenly seemed to come to an end."

This experiment was repeated many times, with always the same result. Upon the other subjects a similar effect was produced, with the same sensations, but of less intensity. It is to be remembered that none of the others could be put into so complete a state of hypnosis as this one subject. The same chord played in any other relation than the one mentioned produced no effect whatever.

Many experiments similar to these were tried, and from the results obtained it must be conceded that music is capable of producing remarkable physiologic effects in persons in the hypnotic state. These changes are most marked in the circulatory system. The action of the heart may, on the one hand, be doubled, or on the other decreased two-thirds of its rate almost instantly, a change that cannot be produced by drugs or by any form of suggestion. At the same time the other characters of the pulse are correspondingly affected. The rate and character of respiration can also be greatly changed, and the vasomotor system is also apparently under musical influence.

Other curious effects were also met with in the course of the experimentation. Certain chords produced in one subject, whenever they were sounded in certain combinations, most marked and painful contractions in the muscles of the legs, of so intense a degree as to cause pain for hours afterward. It was found, moreover, that the power of music was stronger than that of word-suggestion. One patient was thrown into a state of hyperesthesia by the playing of the overture to "Tannhäuser." When given a suggestion that a needle run into his arm would cause no pain he shrieked loudly because of intense pain produced by simple contact of the blunt end of the needle with the surface of the body. At all other times the spoken suggestion produced complete anesthesia. Connected with the hyperesthesia was also an exaggeration of the tendon-reflexes.

It was also found that as a means of producing the hypnotic state music is far superior to the ordinary methods. Different compositions seem to vary in power; as, for instance, one subject could be hypnotized only by the "Pilgrims' Chorus" from "Tannhäuser." Usually before the fifth measure was reached he would be in a complete hypnotic condition; and by no other means could this be accomplished so quickly and so perfectly. It mattered not where the subject was, or what he was doing at the time, even if in another part of the house; this piece of music, as soon as he had perceived it, had an irresistible power over him. It became necessary finally to oppose this effect by means of word-suggestion, in order to release him from its influence.

Having been told by a physician who was present at some of the experiments described, of a case in his knowledge in which certain combinations of tones in orchestral performances produced sexual

orgasms, an attempt was made to ascertain what effect could be produced upon the sexual function by music popularly supposed to be suggestive. The passages from "Die Walküre," "Tristan and Isolde," etc., long severely criticised because of supposed character in this respect, were found to produce only feelings of "longing," "frenzy," etc., but never exciting any sexual desire or suggestion. By the aid of word-suggestion, such effect could be produced, and the emotions of "longing," etc., could be made identical with the physical desire; but never did music of its own accord arouse such a state. And in this connection it may be said that music never directly aroused any purely physical state, as hunger, thirst, fatigue, etc., but gave birth primarily to soul-states.

The first effect of the music was always the production of a pure emotional state; and this emotion brought up in the subject's mind, through the power of association, a perfect and realistic reproduction of some past experience most closely connected above all other experiences with this emotional state. This was always purely personal. If the music produced the feeling of "death," as did some of the Wagner passages, the experience brought up was always that one death which had most deeply touched the subject's emotional life. The physiologic changes in circulation, etc., were partly the direct outcome of this emotion, and partly the result of the secondary experience. The difference in the effects of these two factors could almost always be noted. Thus, for example, the "Walhalla" motive: when first played it produced increased fulnesss and tension of the pulse, the subject breathing deeply but quietly. As the association of the mountain-climbing rose above the mental horizon the pulse became quicker, with lower tension, and the respirations became increased in rate and force. All of the experiments produced results that could be explained in this way, with the exception of the production in one individual of muscular cramps and hyperesthesia. These conditions seemed to have no relation to the emotional state or to the secondary state of association. As the subject put it: "The music simply did it, and that was all there was to it."

The account of the total number of experiments made in this line might prove interesting reading, as the results certainly in themselves were interesting; but in each case the effect was practically corroborative of the foregoing. It is certainly neither desirable nor safe to draw important conclusions from results obtained in such a small number of cases, and I make this report only in order to call attention to the results obtained in one set of subjects. As the difficulties attending hypnotic experimentation are many, the work necessary to establish these results more firmly can be done only by those who have unusual opportunities for investigation in this line. To such I leave this field. Moreover, if music has any therapeutic value, it must to a chief extent be the effect of suggestion; so that, if anything is to be hoped for from its power it must be along this line. Further investigation must show this.

In conclusion, I would say that experiments of this nature may be attended by danger. The symptoms of collapse developed at times, with the accompanying intense emotional shock, might be increased beyond the point of safety. In individuals of strongly musical and emotional natures disastrous results are not inconceivable. There is also danger of establishing an hypnotic habit. In one subject, to whom the intense emotions and vivid experiences were very pleasant, the power of self-hypnosis under the influence of music was practised even in public concerts. The habit was broken by means of word-suggestion. It is necessary, therefore, that hypnotic experiments be conducted with great care, and the possibilities always borne in mind.

CHRONIC INFLAMMATION OF THE SEMINAL VESICLES.[1]

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I FEAR the title of this paper may suggest the idea of rare and obscure disease in an inaccessible situation, of interest only to specialists; but I hope to be able to show that we have within reach a means of interpreting many puzzling symptoms in a large and important class of cases.

The apparent indifference on the part of the profession at large, and even of specialists, toward the vesiculæ seminales is surprising, and it is only within a few years that they have begun to attract in some degree the attention they deserve. Mr. Jordan Lloyd, of Birmingham, England, in 1889, was the first to give them full recognition, and to demonstrate their importance when diseased. In Gouley's *Diseases of the Urinary Apparatus* a chapter is mainly devoted to the subject, which is particularly valuable for its exposition of the anatomy, physiology, and pathology. About a year ago Dr. Eugene Fuller, of New York, read an article that gives a more complete and detailed description than any other that has yet appeared of vesicular inflammation, and especially of its treatment, which he has developed and put on a practical basis.

It may be well to recall a few anatomical points:

"The vesiculæ seminales are two irregularly convoluted tubes, lying one on each side of the under

[1] Read at the Annual Meeting of the Massachusetts Medical Society, Boston, June 13, 1894.

surface of the male bladder. . . . They vary greatly in size, . . . but average perhaps two inches in length, as they lie on the bladder. If dissected off and straightened out, they are found to be two or three times this length. . . . The vasa deferentia pass . . . along the inner sides of the two vesiculæ and unite at an acute angle with the ducts of the seminal vesicles to form the common (ejaculatory) ducts. Just before this union takes place each vas deferens widens out into a tortuous sac or ampulla, which closely resembles in structure the seminal vesicle itself." (Thorndike.)

Inflammation of the seminal vesicles, variously called spermato-cystitis, gonecystitis (Gouley), and seminal vesiculitis, is analogous to salpingitis—that is to say, the vesicles, according to Lloyd, are the analogues of the Fallopian tubes. It is rarely, if ever, a primary affection. It is almost always secondary to urethritis, generally gonorrheal, or it may be, though rarely, secondary to tuberculosis or malignant growth in the vesicle. It is commonly, but not necessarily, present in cases in which there is or has been epididymitis.

Acute inflammation is almost always of gonorrheal origin; it is similar to epididymitis in a general way, and rarely advances to suppuration. The symptoms are substantially those of acute prostatitis: local pain and heat, spasmodic contractions of the perineal muscles, etc.; and this has probably led to mistaken diagnosis in many cases.

But it is the more common and more important chronic inflammation that we have now chiefly to consider. This may result from the acute form first mentioned, but is usually chronic, or at most subacute, from the beginning. In this case the source of the trouble may be gonorrheal prostatitis or cystitis, or a posterior urethral catarrh resulting from congestion of the prostatic portion brought about by prolonged and repeated sexual excitement.

In chronic vesiculitis we have a train of symptoms commonly enough observed and not always peculiar to this affection, and, therefore, generally attributed to other causes. There may be a chronic urethral discharge, with shreds in the urine; or vesical irritability with frequent micturition, not always present and often slight, but sometimes more marked, with urine more or less turbid and containing shreds and clumps of pus and blood. In a large majority of cases there is some disturbance of the sexual function, showing itself by the presence of one or more of the following symptoms: deficient erectile power, with or without diminished desire, spermatorrhea, frequent emissions, occasionally hemospermatism, viscid discharge from the meatus at stool, and the various local subjective sensations, as well as the general nervous and mental symptoms peculiar to sexual neurasthenia. A burning feeling in the perineum and along the urethra is one of the more common of the subjective sensations. Spermatic colic, a pain in the region of the vesicle, due to occlusion of the duct, and sometimes accompanying ejaculation during coitus or an emission, is an occasional symptom.

It might seem that with symptoms so varied and not wholly characteristic the diagnosis would not be easy, and in fact, it can only be made by rectal examination. When a sufficient number of examinations have been made to thoroughly familiarize one with the topography of the region under varying conditions, the diagnosis is not difficult in a well-marked case. The vesicles, or at least their lower parts, are usually within easy reach of the forefinger, though in some cases they are more difficult to get at. The patient with a moderately full bladder should stand with the body bent to a right angle at the hips, with the knees straight, the feet spread apart and the hands resting on a chair. The forefinger is passed slowly and gently through the anus and over the prostate, which should be examined and its condition noted as to size, form, and consistence. According to my experience, it is rather small in a large proportion of these cases. Just beyond the lateral lobes of the prostate, lying in the sulcus between it and the distended bladder, and extending obliquely outward and backward toward either side, are the seminal vesicles. The examination is aided by exerting counter-pressure with the free hand over the inguinal region of the side that is being explored. It is further aided in cases in which the vesicles are difficult of access by placing the foot corresponding to the examining hand on a chair and bracing the elbow against the knee; in this way considerable force can be exerted by which to overcome the resistance of the perineal muscles.

When normal the vesicles are soft and scarcely appreciable to the touch, sometimes not at all; but when diseased they are plainly felt. One or both may be affected. Sometimes they are nodular and indurated, resembling somewhat a twisted and knotted cord. Again, they are much distended, and form smooth, rounded bodies that on palpation are felt to contain fluid. In the latter case the vesicle is often so closely attached to the prostate as to be easily mistaken for it—that is, it seems to form the posterior border of the lobe on that side, but with care fluctuation can be detected and a line of demarcation between the vesicle and the prostate can be made out, similar to the line of demarcation between the testicle and the epididymis in acute inflammation of the latter organ. Sometimes the vesicles are much enlarged and dilated, but not distended, and form soft, fluctuating sacs. Gouley speaks of shriveling of the vesicles, generally asso-

ciated with prostatic enlargement; but a diagnosis of this condition could hardly be made during life.

In acute inflammation, of course, the swelling is greater, the perivesicular tissue being involved; it is diffused, doughy, and hot, and is extremely sensitive to the touch. The sensation in the chronic affection varies in different cases. Sometimes there is decided pain and tenderness on pressure, but these are usually not marked, unless the finger bears down quite hard; more commonly a disagreeable sensation is described, which occasionally causes faintness. Sometimes there is only slight sensitiveness, even on firm pressure. By means of this pressure the contents of the vesicle are emptied into the deep urethra, and, if in considerable quantity, will ooze from the meatus and will in any case appear in the urine passed after the operation. The fluid thus squeezed out varies in different cases from a thin liquid, resembling skimmed milk, to a thick, gelatinous substance, sometimes containing inspissated particles and appearing in the urine in the form of clumps and shreds. Microscopic examination of the thin fluid shows only a little epithelium and a few dead spermatozoa; the thick substance often seems to consist of masses and bands of fibrinous material, entangled in which are sometimes a few, sometimes great numbers of motionless spermatozoa. When normal vesicles are squeezed nothing will appear, except perhaps a very slight turbidity of the urine.

With respect to prognosis, this must necessarily, a few years ago, have been regarded as decidedly unfavorable; but owing to recent progress in treatment, it is already safe to say that improvement may be expected in a majority of cases, although more extensive data than are now attainable will be required before a reliable opinion can be formed as to the chances of complete recovery.

The treatment is simple, but requires a good deal of judgment, chiefly to avoid overdoing. It consists in pressure with the end of the forefinger, reaching as far up toward the free end of the vesicle as possible, and then stripping it down toward the duct. In this way the abnormal secretions are removed and are not allowed to accumulate. Sometimes the ducts are obstructed by inspissated material or by concretions called sympexia, and several treatments are necessary to clear them; or a sound may be passed into the bladder and the vesicles pressed against it, as advised by Gouley, the obstruction being in this way more easily dislodged. The danger in overdoing the treatment is of bringing on an acute exacerbation by too active manipulation, which I was unfortunate enough to do in one of my first cases. As some patients are much more susceptible to reaction than others, great caution should be observed at first, only gentle pressure being used, and the effect carefully watched. As to frequency of the sittings, Gouley recommends daily treatment, but Fuller thinks it should not be repeated oftener than once in four days. The effect of the treatment is not, as a rule, immediately apparent, although in some cases marked improvement is soon noticeable.

It is generally necessary to keep up the treatment for several weeks, sometimes even months, before the vesicles are restored to a normal condition. This is brought about by keeping them empty until their muscular walls recover their tone and they are able to properly carry on their functions. This process is appreciable to the physician in a gradual decrease of the swelling and softening of the induration, until after a while the vesicles apparently disappear—that is, they become as difficult to feel as in the normal state. At the same time the sensitiveness steadily diminishes and the amount of fluid expressed grows constantly less until there is none. I have noticed, also, in a few cases that the prostate, which is necessarily massaged more or less during the manipulation of the vesicles, has undergone considerable change, increasing in size when atrophied, and assuming a more nearly normal consistency. In the course of the treatment a gradual improvement in the general health and in the nervous condition, or a diminution in the frequency of emissions, or, in general, an abatement of whatever symptoms secondary to the disorder have been prominent in each particular case may be looked for. No medicinal treatment is required, unless indicated by special symptoms.

Since the latter part of January, when, through Dr. Fuller, whose methods I have closely followed, I became especially interested in this subject, I have examined seventy-four cases with reference to the condition of the seminal vesicles. In all of these there was reason to suspect that disease of the vesicles might exist. In fifty-five a more or less abnormal condition was found, both vesicles being affected in thirty-eight of them. In two cases the trouble was acute, in three, subacute, and in the remainder it was chronic. In the acute cases, in two of the subacute and in thirty-one of the chronic cases there was a history of gonorrhea. Of twenty-three cases, all chronic, in which I have been able to follow up the treatment sufficiently long to get definite indications of its effect, there has been improvement in nearly all. In a few it has been marked and speedy, some having practically recovered; in the majority it is still too soon to give final results, while a very few have been disappointing.

Since this paper was written I have had the pleasure and advantage of hearing a very exhaustive article on the subject by Dr. R. W. Taylor, of New York, who, at the same time showed by means of an

anatomical specimen that the vesicle is convoluted and doubled on itself in such a way that stripping the organ with the finger toward the duct would empty only a portion of it, together perhaps with the vas deferens. He believes that the dilated portion or ampulla of the vas deferens is often mistaken for the vesicle. He is, in fact, somewhat skeptical as to the efficacy of the treatment by pressure. However this may be, it is certain that the large amount of fluid squeezed out and the progressive diminution in the swelling observed in many cases show that the pressure has been effectual. In view of these facts, which seem to be not wholly consistent, a few considerations suggest themselves.

1. The fluid in a distended vesicle, subjected to pressure, would escape at the point of least resistance, which would be the natural outlet, no matter how tortuous, unless the wall of the vesicle were ruptured by violence. Simple pressure on such a blind sac would seem better than an attempt to strip the vesicle down toward the duct.

2. The slow and unsatisfactory progress of a few cases may be due to the difficulty of emptying such portions of the vesicle which may in these cases be the chief seat of disease.

3. In some cases the ampulla of the vas deferens may alone be affected, when the stripping process would be easy and effective.

4. Disease of the vas deferens may possibly be of more importance than that of the vesicle itself, obstructing as it does the direct road from the testicle.

5. Simple massage of the vesicles may play an important part in the treatment.

AUTHORITIES.

Jordan Lloyd, M.B., F.R.C.S.: "On Inflammatory Disease of the Seminal Vesicles," British Medical Journal, April 20, 1889; "On Spermato-cystitis," The Lancet, October 31, 1891.

J. W. S. Gouley, M.D.: "Diseases of the Urinary Apparatus," chapter xi, 1892.

F. B. Robinson, B.S., M.D.: "Gonorrhea of the Vesiculæ Seminales," THE MEDICAL NEWS, Philadelphia, May 7, 1892.

Paul Thorndike, M.D.: "Diseases of the Seminal Vesicles" in Morrow's System of Genito-urinary Diseases, Syphilology, and Dermatology, vol. i, 1893. Appended to Dr. Thorndike's article is an extensive bibliography.

Eugene Fuller, M.D.: "Seminal Vesiculitis," Journal of Cutaneous and Genito-urinary Diseases, September, 1893; "Persistent Urethral Discharges dependent on Subacute or Chronic Seminal Vesiculitis," Journal of Cutaneous and Genito-urinary Diseases, June, 1894.

R. W. Taylor, A.M., M.D.: Paper read at the Annual Meeting of the American Association of Genito-urinary Surgeons, Washington, D. C., May 31, 1894. Not yet published.

Teratologia is the name of a new journal whose contents are made up of quarterly contributions to antenatal pathology, with reviews of the current literature of the subject. It is edited by Dr. J. W. Ballantyne, of Edinburgh. The second number bears the date of July, 1894.

CLINICAL MEMORANDUM.

POTASSIUM NITRATE IN THE TREATMENT OF PHLEGMASIA ALBA DOLENS.

BY GREGORY H. HOVNANIAN, M.D.,
OF WEST FULLMAN, ILL.

WITHIN the past month it has fallen to my lot to treat three well-marked cases of phlegmasia alba dolens with potassium nitrate with such gratifying results as to seem to justify publication.

Mrs. H., twenty-three years old, was delivered of her first child by her family physician with instruments, and sustained extensive lacerations of the cervix uteri and perineum, which at the time were not repaired, but were left for a secondary operation. Twelve days after delivery she complained of pain and heaviness in the left leg, and within three days there developed well-marked phlegmasia. On the fourth day of this complication I saw the patient in great agony, with a temperature of 105.2,° a pulse of 130, and respirations 25. The limb was so turgid and swollen that there seemed to be great danger of gangrene or rupture. The woman was at once given morphin sulphate, gr. $\frac{1}{8}$, hypodermatically, and her limb was wrapped with cotton and placed on a feather pillow at a very obtuse angle. I then prescribed a solution of potassium nitrate in water representing five-grain doses, to be given every hour until my return. Seven hours later I found my patient in better condition, with a temperature of 103°, a pulse of 112, and respirations 22, and with less pain and discomfort. The swelling seemed to be less tense and the veins less engorged. The nitrate was continued as before until morning, when I found her in yet better condition. She had slept well during the night, although she had been wakened regularly for her medicine. Her temperature was 100°, her pulse 95, her respirations 20. The swelling was reduced to less than half, and the returning circulation was fairly well established. There was no pain whatever, and but slight tenderness on pressure. The medicine was continued every two hours during the day, until I saw her late in the evening with a temperature of 99°, a pulse of 90, and respirations 18. The swelling had almost entirely gone, and everything was in good condition. The nitrate was continued for two days in smaller doses, and at longer intervals, and then discontinued.

The second case is more interesting because of a relapse, in the course of which potassium nitrate was given a more thorough test.

Mrs. S., thirty-five years old, after a normal labor, lasting eight hours, was delivered of her fourth child. She sustained no laceration of the cervix uteri, but a very slight one of the perineum, necessitating no stitches. According to the statement of the attending physician everything progressed normally until the ninth day after delivery, when symptoms of phlegmasia appeared, and in a few days developed into a typical case. Opiates and laxatives were administered, and evaporating lotions applied to the affected limb without avail until the fourth day, when I saw the patient in consultation. At this time the temperature was 105°, the pulse 120, the respirations 22. The limb was greatly swollen and turgid, and there was besides abdominal tenderness and tym-

pany. Previous to my visit the attending physician, thinking gangrene of the limb imminent, suggested the necessity of longitudinal incisions deep into the limb, but the family would not consent, and requested a consultation. After a thorough examination of the patient's general condition, which was rather unfavorable on account of a weak heart and extreme nervousness, I advised the postponement of surgical interference, and suggested a thorough trial of potassium nitrate. The attending physician assented, and asked me to take charge of the case, as he was obliged to go out of town for a few days. I ordered potassium nitrate, gr. v, every half-hour; meantime I discontinued the evaporating lotion, and wrapped the limb in cotton, and put it at a very obtuse angle on a feather pillow. Eight hours later I found the patient much improved. The temperature was 101.4°, the pulse 100, the respirations 20; the swelling had decreased, and there was less pain. The woman had slept about three hours for the first time in three days, and felt refreshed and hopeful. The abdominal tenderness and tympany had not improved at all (these were undoubtedly due to constipation), yet I did not dare open the bowels from fear of disturbing the limb. I, however, reduced the nitrate to five grains every hour. The following morning I found the woman still more improved, the temperature being 99.2°, the pulse 90, and the respirations 19. The swelling was mostly gone; there was no pain; and all was progressing well, except the abdominal symptoms, which were rather increased and caused much complaint. The nitrate was reduced to five grains every two hours, and small doses of calomel were ordered every half-hour until the bowels moved. During the afternoon the bowels moved twice, with much relief to the abdominal distress. In the evening I found the woman in a very comfortable condition, the swelling fast disappearing, and she out of danger. The next day the nitrate was given every three hours, and the swelling had almost entirely disappeared; but in the evening, in placing her upon the chamber, they wrenched her affected limb, and during the night she suffered excruciating pain. Early in the morning I was sent for, but being away from home I did not see the patient until two o'clock in the afternoon. I was surprised to find her in as bad a condition as on the first day I saw her. The temperature, pulse, and respirations were as high as before, and she seemed to have much more pain, so that I suspected a fracture or dislocation complicating the relapse; but the swelling was so tense that no examination could be made. I ordered opium-suppositories to control the bowels, and put her on five-grain doses of potassium nitrate every hour as before. In the morning I was gratified to find the temperature almost normal, the pain and swelling almost gone, and the patient in a fair way to recovery. After this the nitrate was reduced gradually as before, and she made a rapid recovery.

The third case was a comparatively mild one, and made its appearance earlier than the foregoing two cases, although it did not respond to the treatment so readily.

Mrs. J., thirty years old, after a normal labor, was delivered of her third child without any laceration of the parts. On the third day she had an abundant flow of milk to the breasts, which caused her considerable distress. This was soon checked by massage and laxatives, but on the sixth day the right lower extremity began to swell, and there developed a phlegmasia. The limb was wrapped in cotton, and put at an obtuse angle on a feather pillow, and the woman was given potassium nitrate, gr. v, every hour. Within twenty-four hours the active process was checked, but the pain and swelling were not reduced; nor was the temperature, which was 102°. I increased the dose of the nitrate to five grains every half-hour. This was continued for eighteen hours, after which the swelling and pain began to subside, and entirely disappeared in four days.

It is surprising to note how rapidly the temperature, pain and swelling were reduced by the repeated doses of potassium nitrate, even when antithermics, opiates, and evaporating lotions had proved entirely useless. I did not notice any change in the action of the heart in any of these cases, although the urine was very much increased in quantity. After the temperature was reduced, it had a tendency to remain subnormal for a few days, being 97.8° on an average, and in one case remaining 97.4° for three days, but no chilly sensation was complained of.

I consider friction of the affected limb, as recommended and practised by some, very dangerous, as a blood-clot may be detached and carried to the heart or some other organ, and disastrous results follow. I therefore consider absolute rest and a position of the limb which will slightly relax the vessels essential for safe recovery.

HOSPITAL NOTE.

INHALATIONS OF OXYGEN IN TWO CASES OF OPIUM-POISONING.

[Service of Dr. S. S. Stryker, Presbyterian Hospital, Philadelphia.]

By P. M. Ashburn, M.D.,
resident physician.

Seeing in The Medical News of July 21st an extract from the *Lancet* of June 2, 1894, on the use of inhalations of oxygen in the treatment of opium-narcosis, I thought it might prove interesting to relate two cases of opium-poisoning in which oxygen-inhalations were employed.

On June 11th there was admitted to the receiving ward, at about 1 A.M., a child of fourteen months, in deep coma. The mother stated that she had been taking laudanum for the relief of pain, and had left the bottle standing on a window-sill, where the child had gotten it and drunk the contents. The mother could not even approximate the amount taken. The child had drunk the liquid at about 8 P.M., and was treated at home, but grew steadily worse and was sent to the hospital. On admission she was deeply comatose, and completely relaxed, with all reflexes absent, the pupils minutely contracted, the respiration rapid but very shallow and feeble, the pulse rapid, small, and weak. She was given a hypodermatic injection of atropin sulphate, gr. $\frac{1}{100}$, strychnin sulphate, gr. $\frac{1}{100}$, and caffein citrate, gr. $\frac{1}{4}$, which was repeated in fifteen minutes, with no apparent effect, and as the child was sinking and its respirations ceased entirely, resort was had to oxygen-inhalations and artificial respiration. The effect was immediate, and

after six or eight respirations the breathing was spontaneous, full and deep, and the pulse much stronger and fuller. Two gallons of the gas were given at this time, and two gallons every half-hour for the rest of the night. The recovery was uninterrupted and complete.

The second case was that of a man of fifty years, who was admitted June 30th, in deep coma, with minutely contracted pupils, face and hands pale, cool and moist, arms and legs completely relaxed, respirations very slow and shallow, and pulse very soft and compressible. There was no odor on the breath; the urine contained albumin. The temperature was 96.4°, the pulse 124, the respirations 4. The history was that the man had not been feeling well and had retired to his room at 2 P.M., and was not seen again until found in coma almost five hours later. In his room was found a note of farewell and two empty bottles that had contained laudanum. The one was a three-ounce bottle; the other was not brought to the hospital, and its size is not known. On admission the patient was given hypodermatically atropin sulphate, gr. $\frac{1}{30}$; strychnin sulphate, gr. $\frac{1}{10}$; and caffein citrate, gr. jss. There was considerable delay in getting oxygen, and before it arrived the respirations had ceased and the pulse was very bad. Artificial respiration was meanwhile employed, and when the oxygen arrived its administration was at once begun. After a very few breaths of the oxygen the respiration was spontaneous, and the change in the pulse was most marked and gratifying. Almost immediately the pulse became slower and strong and full. The respirations rose to 18 per minute, and were full and deep. Fifteen gallons of oxygen had been used, a considerable part probably being wasted.

At the end of three-quarters of an hour the respirations were again becoming slow and shallow and the pulse weak, so that every half-hour the man was ordered at least two gallons of oxygen, and as much more as might be necessary to get his pulse and respiration in good condition. Sometimes two gallons sufficed, and at other times ten gallons were necessary.

The next day the patient's condition was much improved, but his temperature was high, at one time reaching 104°. The patient had also been getting a grain and a half of caffein citrate every hour for a time, and then every two hours. As the elevation of temperature was ascribed in part to this drug, and as it did not seem to do much good, it was withheld. The patient was thus getting nothing but the oxygen. The urine was found to be dark, of a specific gravity of 1022, and to contain albumin and hyaline and granular tube-casts.

The man came entirely out of his coma, but his breath became urinous and he developed symptoms of uremia, with almost entire suppression of urine. His bowels were moved freely, however, and he seemed to be improving, but died suddenly on the third day after his admission, his temperature a short time before death being 103°.

The autopsy disclosed the existence of chronic parenchymatous nephritis. There was edema of the brain, and almost complete consolidation of both lungs, apparently due to hypostatic congestion, though repeated and careful examination of the lungs before death had shown no abnormal signs other than slightly enfeebled breath-sounds and a few moist râles at the apices.

While it may not appear from the report of these two cases that the oxygen played a very important part, or that it was markedly beneficial, such was certainly the case. The improvement in the pulse and respiration under its use was so rapid and so manifest that all who saw it could not but be convinced. The death of the second case was probably due to the kidney-lesions, with the secondary conditions present in the lungs and brain, and the first marked improvement would in all probability have continued had the kidneys been normal.

THERAPEUTIC NOTES.

By SOLOMON SOLIS-COHEN, M.D.,
of Philadelphia;
Professor of Clinical Medicine and Therapeutics in the Philadelphia Polyclinic; one of the Physicians to the Philadelphia Hospital, etc.

VII.

BENZONAPHTOL AND BISMUTH SALICYLATE IN SUMMER DIARRHEA.

The term summer diarrhea is here used to include the various forms of gastro-intestinal disturbance occurring during warm weather, and especially characterized by frequent, loose, or even fluid discharges from the bowel: sometimes attended with pain; sometimes attended with fever; sometimes associated with nausea and vomiting.

While the pathology and etiology of these various forms of disturbance of the alimentary canal vary in particulars, the general factors are the same; an indiscretion in diet, special or general, remembered or forgotten; over-heating or over-exertion in the heat; irritation or inflammation of the gastro-intestinal mucous membrane in whole or in part; bacterial activity; intoxication by absorption of noxæ from the intestines. After the alimentary canal has been cleansed of irritating materials by the most available means, which may be, according to circumstances, lavage of the stomach, irrigation of the bowel, or the administration of a purge, usually calomel, or a mixture of castor-oil and spiced syrup of rhubarb (equal parts); and after the diet has been duly regulated, I have observed very satisfactory results from the administration of the following combination:

Benzonaphtol Bismuth salicylate Dover's powder	of each, 5 grains.

In capsule, cachet, or powder.

To an adult, one capsule is given every three hours, or as necessary. It is rarely needful to exceed four doses in the twenty-four hours. To children, the same preparation may be given in reduced dosage; thus to a child of two years I have given:

Benzonaphtol	2 grains.
Bismuth salicylate	2 "
Dover's powder	½ grain.

In the mildest cases benzonaphtol alone has proved efficient, and in many cases the opium is unnecessary; but, as a rule, the combination of the three ingredients in the proportions stated is more promptly efficacious, if present experience can be relied upon, than any other routine treatment I have used. This is the second season during which I have employed it.

A word may be added as to diet. It is best, under the conditions stated, to make a complete change in the food, whether of child or of adult. If a child is taking milk in any form—sterilized, boiled, predigested, or plain—all milk should for the time being be cut off. It will not harm a child to go without food for a day or two, but as parents cannot readily be brought to see this, it is best to give some substitute. Barley-water and (home-made) beef-juice are the most available. They may be given alternately in small quantities—from two to four ounces of barley-water; from one to four drams of beef-juice, freshly prepared, every third or fourth hour. If a child has been sick for some time and is much run down, alcohol (from ten to twenty drops of brandy or whiskey) may be added, or given with water between food-times. Smaller quantities of beef-juice, given more frequently, may sometimes be called for by the special conditions of a particular case. If a child is taking various kinds of food, but not much milk, boiled milk with pancreatic powder may be given, as with adults. As a rule, however, it is advisable to avoid milk until the alimentary canal is rendered aseptic, for milk is quite liable to undergo deleterious change after being swallowed, as well as before—a point that is frequently overlooked.

In the case of adults it is usually safe to give boiled milk; in some instances adding sufficient pancreatin and sodium bicarbonate to accomplish artificial digestion in the stomach. I usually prescribe two and a half grains of pancreatin and seven and a half grains of sodium bicarbonate (*i.e.*, one dram and three drams respectively, divided into twenty-four powders, in waxed papers), to be dissolved in an ounce of cold water, and the solution added to a teacupful of warm (previously boiled) milk. This is taken every third hour. When the patient refuses milk, or it is for other reason objectionable, beef-juice, barley-water, tea, coffee, sherry and water, whiskey and water, claret and water, and the like may be given, in small quantities. In most cases the whole question of alimentation is a negative rather than a positive one—to avoid food that will ferment or decompose, or otherwise give rise to irritating products or toxins; for recovery is usually so prompt that the problem of maintaining nutrition does not arise. It is usually best to give water freely—aërated water being preferable.

NEW INSTRUMENTS.

TREATMENT OF URETHRAL VEGETATIONS BY MEANS OF A CIRCULAR CUTTING CURET.

By JOHN B. DEAVER, M.D.,
of Philadelphia.

A definite knowledge of the presence of urethral growths can only be obtained by inspection of the canal. This is now most readily accomplished by the electric-light urethroscope, a valuable instrument, not only in the diagnosis of chronic urethral lesions, but in the treatment of many as well. That the urethroscope is a necessary instrument in the practice of genito-urinary surgery can no longer be questioned.

The removal of certain forms of small urethral growths can be accomplished by local applications made through a urethroscopic tube, while in the case of larger growths, and especially if they be sessile in character, more radical treatment will be required. For the latter purpose I have devised the instrument shown in the accompanying illustrations—a circular cutting curet, which is introduced through a urethroscopic tube.

The instrument consists of a circular blade, with two notches on the free border, opposite each other, and which engage the urethral vegetations. The blade is fastened to the end of a rod mounted in a handle that fits snugly into the proximal end of the urethroscopic tube, thus steadying the curet during manipulation. It is important to introduce as large-sized a tube as the urethra will permit, the object being to put it on the stretch, thus facilitating the removal of the growths.

As the normal urethra varies in caliber, it is necessary to have a number of instruments of different sizes. The hemorrhage following the removal of the vegetations, which is sometimes free, is easily controlled by the application of a solution of silver nitrate, the strength of which will vary according to circumstances.

1. Deaver's urethroscopic tube, with circular cutting curet *in situ*.
2. Deaver's circular cutting curet.
3. Deaver's urethroscopic tube, with stylet.

The only opportunity I have had of using this instrument has been in two cases of venereal warts within the urethra—the histories of which I shall briefly relate:

Case I.—A. T., aged thirty-two years, came under my notice with a chronic urethral discharge, for which he had been treated without relief. He gave a history of having had two attacks of gonorrhea. Urethroscopic examination showed, in addition to an infiltration of the anterior half of the pendulous urethra, the presence of a number of venereal warts, extending backward from the meatus four and a half inches. The urethra was cocainized, and the warts were removed at one sitting with the circular curet. The bleeding was free, but was controlled without difficulty by the application of a

solution of silver nitrate. The patient reported a week afterward, when a second examination showed the urethra free from foreign bodies.

Case II.—S. K., aged twenty-eight years, with a history of three previous attacks of gonorrhea, was referred to me by his physician for urethroscopic examination to determine the cause of a chronic urethral discharge. The examination revealed the presence of a stricture of large caliber, three and a half inches within the meatus. Behind the stricture the urethra to the peno-scrotal junction was the seat of large sessile venereal warts. These were readily removed by the circular curet, the stricture having been previously divided by dilating internal urethrotomy.

MEDICAL PROGRESS.

Successful Excision of a Perforated Ulcer of the Duodenum.—Dean (*British Medical Journal*, No. 1741, p. 1014) has reported the case of a woman, twenty-seven years old, who for about two weeks had suffered from pain in the chest and at the pit of the stomach. There had been some nausea and vomiting and the bowels had not been moved for seven or eight days. About twenty-four hours before coming under observation the woman had suddenly become worse, complaining of severe pain at the pit of the stomach and of a sensation of intense weakness. This was soon followed by vomiting repeated at frequent intervals. The pulse was 120, feeble and regular. The respirations were rapid and irregular in force and rhythm. The tongue was slightly furred and dry. There was uniform tenderness over the whole abdomen; the distention was moderate in degree and the percussion-resonance was increased. The temperature was 100.6°. It was thought that there existed mechanical obstruction of the bowel, with general peritonitis, and it was decided to operate at once. An incision, about three inches long, was made below the umbilicus. On opening the peritoneal cavity a quantity of purulent fluid escaped, and coils of intestine, somewhat distended, intensely congested and covered in places with flakes of lymph, protruded through the wound. No evidence of mechanical obstruction could be found. The incision was therefore extended upward and flakes of lymph were found in the region of the gall-bladder. In the center of one of these flakes gas-bubbles were noticed, forming a kind of froth. A probe introduced into the froth passed into a cavity which was found to be the duodenum, the perforation being situated on the anterior aspect about three-quarters of an inch beyond the pylorus. Around the perforation distinct induration could be felt. This area was excised by means of scissors. The portion removed was elliptic in shape, measuring one and a quarter inches in its long axis, which was parallel with the transverse axis of the gut. The portion excised was found to include the ulcer and a margin of healthy mucous membrane. In the center of the ulcer was a perforation about 2 mm. in diameter. The floor of the ulcer was white and the edges were bound by apparently healthy mucous membrane. The elliptic opening thus made into the duodenum was then closed by means of Lembert sutures. The peritoneal cavity was washed out with a weak boric-acid solution and well sponged, and the wound was closed by stitches passing through the whole thickness of the abdominal wound. The patient was nourished per rectum by enemata and suppositories for seventeen days. She rapidly improved, and was given liquid food by the mouth on the eighteenth day and solid food on the twenty-eighth day. Thirty days after the operation the patient was walking about and eating ordinary food. Twenty-five days later she presented symptoms of intestinal obstruction due to a band. The abdomen was opened and the constriction, which was found to involve the ileum about six inches above the cecum, removed. The woman recovered slightly from the shock of the operation, but never rallied thoroughly. She gradually became weaker, and died about thirty-six hours after the operation. Upon post-mortem examination a considerable amount of lymph was found upon the intestines and the peritoneal cavity contained a quantity of turbid fluid. About three inches above the attachment of the band to the small intestine was a perforation from which intestinal contents had escaped. A little higher up was another perforation. On opening the intestine each perforation was found to be the center of a small ulcer. The ulcers were evidently of acute and recent formation, while there were several other necrotic patches within eighteen inches of the obstructed point. For about half an inch from the pylorus the duodenum was thinner than normal and the peritoneum over it was puckered. The duodenum was quite healthy and presented no traces of past or recent ulceration.

An Unusual Form of Anal Tuberculosis.—Kramer (*Centralblatt für Chirurgie*, 1894, No. 16, p. 363) has reported the case of a man, thirty-nine years old, who within a period of a year had presented cough, with scanty expectoration, and pain in defecation, with some tenesmus, and with slight hemorrhage at times. An ulcer, about an inch in diameter, had formed in the region of the anus and despite topical treatment had progressively increased in size. There was pain preceding and during defecation, together with some hemorrhage and with failure of nutrition, emaciation, and loss of strength. Physical examination disclosed impairment of the percussion-resonance and fine râles at the summit of the right lung. The inguinal glands were slightly enlarged on both sides. In the region of the anus there existed a fungous tumor, half as large as an ordinary apple, granulating upon its surface and secreting pus. It involved the parts to the right of the anus and extended to the internal sphincter. With a lens the granulations could be seen to be made up of small, grayish-yellow nodules. The ulcerated area was circular in outline; its margins were firm and not undermined; it was pale bluish-red in color; the surrounding tissues were not involved; and there was no indication of a fistula communicating with deep-seated parts. In view of the suffering of the patient it was decided, after suitable preparation, to operate and the entire ulcer was duly excised, the right half of the external sphincter being included in the removal. The wound was sutured and dressed with iodoform and gauze and the bowel tamponed. Primary union resulted and the man was dismissed at the end of three weeks. The symptoms referable to the anus were permanently relieved, although death took place some months after the operation as a result of the pulmonary condition.

Histologic examination of the tissues removed disclosed the presence of tubercles and of tubercle-bacilli. The peculiar and unusual localization is attributed to the lodgment in an abrasion or fissure of the mucous membrane at the anus of tubercle-bacilli contained in swallowed sputum.

Degeneration of the Thyroid Gland in a Case of Arthropathic Psoriasis followed by Myxedema.—Sergent (*Bull. de la Soc. Anatom. de Paris*, 1894, fasc. No. 6, p. 180) has reported the case of a woman, fifty-five years old, who, ten years before coming under observation, had a generalized eruption of psoriasis in conjunction with other disturbances related to the menopause. The eruption disappeared in the course of a few months, but was soon succeeded by another, and in this way numerous attacks occurred; but finally there was no remission in the skin-lesion. The patient complained also of pains occurring paroxysmally, and referred especially to the small joints of the hands and feet and of the spinal column. The joints of the hands and feet became distorted and nodular, like those of arthritis deformans. The head became strongly flexed on the chest and could not be extended, efforts to do so giving rise to pain. The integument presented a livid, red hue, which was especially marked upon the arms and the thighs, where there was, besides, an abundant desquamation of large scales. In these situations the skin and the subdermal structures were infiltrated by a hard, smooth, and stiff edema, not pitting on pressure. The face was pale, the eyelids swollen, the expression fixed, the cheeks relaxed, the lips large and pendent. The intelligence was obscured and the memory impaired; the patient found difficulty in expressing herself and stuttered in speaking. All of the symptoms progressed slowly until death ensued. Upon post-mortem examination the lungs were found emphysematous and anthracotic; the pericardium was distended with a large quantity of fairly clear fluid; the heart was large and surcharged with fat; the aortic valve was slightly incompetent, and on the larger mitral leaflet was a patch of atheroma. The kidneys were in a state of parenchymatous inflammation. The thyroid gland was much reduced in size; the right lobe was relatively atrophied, while the left had almost entirely undergone calcareous degeneration.

Eight Splenectomies and One Ligation of the Splenic Artery.—At the Eleventh International Medical Congress, recently held at Rome, Tricomi (*Le Mercredi Médical*, 1894, No. 19, p. 232) reported eight cases in which he had extirpated the spleen for various morbid conditions, with a fortunate issue in all but one. In one there existed splenic leukemia. The proportion of colorless to red blood-corpuscles varied from 1 : 30 to 1 : 10. The spleen weighed a little more than five pounds. The patient died of shock four hours after the operation. In one case a wandering spleen was removed; the blood contained 1 colorless to 410 red corpuscles; the spleen weighed 14½ ounces. In a third case there was ectopia of the spleen; the organ was adherent to the parietal peritoneum in the right epicolic region; the proportion of colorless corpuscles was 1 to 380 red; the spleen weighed 15 ounces. In two cases there existed simple splenic hyperplasia; in one there was 1 colorless blood-corpuscle to 500 red, in the other 1 to 400; the organs weighed respectively more than 2 and more than 2½ pounds. Three cases presented malarial hyperplasia of the spleen; the proportion of colorless to red corpuscles was respectively: 1 : 350, 1 : 390, 1 : 470. The spleens weighed respectively 2 pounds, 2 pounds, and a pound and a half. In two of the operations median celiotomy was performed; in the others a curvilinear incision was made from the inferior border of the left seventh rib to the anterior superior iliac spine. In all cases the hilus of the organ was ligated *in situ* in three or four divisions; in one instance seven ligatures were necessary. In one case of splenic leukemia, in which the proportion of colorless blood-cells was 1 to 70 red, the splenic artery was ligated. The spleen underwent gradual gangrene, and death took place on the forty-fifth day after the operation.

Posterior Spinal Sclerosis with Homonymous Hemianopsia.—At a recent meeting of the New York Neurological Society, Dr. Frederick Peterson presented a married bricklayer, fifty years old, without hereditary taint. He had had a chancre twenty-eight years before, and for four years had noticed that his vision was growing dim, although fourteen years earlier he had had transient diplopia for three weeks. The man had been under observation for a year, during which time there had been little progress in the main features of the case. The knee-jerks were absent, station was swaying, sharp shooting pains were present in the legs, principally the right leg, with dull pain in the back, impaired muscular sense, slowness of micturition, Argyll-Robertson pupils, and some optic atrophy. There had never been crises or trophic disturbances, or girdle-sensation, or anesthesia. The hemianopsia had been noticed for about a year. It was thought to have come on suddenly, but there was no accompaniment in the way of headache, faintness, loss of consciousness, or other disagreeable symptoms. The left visual field was limited to the upper nasal quadrant; the right to the upper temporal quadrant.

THERAPEUTIC NOTES.

Iodoform for Fibrinous Rhinitis.—Vladar (*Pest. med.-chir. Presse*, No. 16; *Wiener medizin. Presse*, No. 23, 1894, p. 899) has found iodoform to be an excellent remedy—a specific he believes—in the treatment of fibrinous rhinitis. After irrigating the nasal passages, powdered iodoform is insufflated, the patient inspiring deeply. Sometimes cocain is additionally necessary to relieve the irritability and the sense of tension and fulness. It is well to have the patient breathe through a mask of gauze, for the useful effect upon the moisture of the cavities and upon the relaxation of the mucous membrane.

For Bronchitic Asthma.—

℞.—Ext. stramonii . . . . gr. ⅛.
Potassii iodid. . . . . gr. v.
Ammonii carb. . . . . gr. iv.
Tinct. lobeliæ æther. . . . ♏v.
Aquæ chloroformi . . ad ʒss.—M.

S.—A tablespoonful every four hours.

Practitioner.

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, JULY 28, 1894.

THE NEW ASYLUM AT WERNERSVILLE.

ON the 14th instant an informal transfer of the buildings of the new Asylum for the Chronic Insane at Wernersville was effected. The Building-Commissioners, who have about completed their task, resigned the charge of the new and extensive buildings to the Board of Trustees, who henceforth will have the care of the institution. This, practically, inaugurates not only a new *régime* at Wernersville, but also a new era in the history of the chronic insane in this State.

The subject is one of more than passing interest, and therefore deserves brief notice. We shall not attempt either to dictate a policy or to prophesy results; but, in common with many others, we have some opinions, hopes, and fears on the subject of the new hospital, which in moderation may be expressed.

The opportunity is now given, for the first time practically in this State, for the proper trial on an extensive scale of an improved scheme for the benefit of the chronic insane. As we understand the plan, the chronic insane are no longer to be merely incarcerated until they die; to be regarded merely as unfortunate, and, unfortunately, wards of the State; to be kept out of sight with a minimum of scandal and expense. On the contrary, they are to be a part, and an essential, integrant part of a great institution, sharing in its daily life, as far as in them lies, as a vital working factor. While they incur the usual isolation from the great social life of the outside world, which their condition demands and imposes, they are to be ushered into a social sphere where all at least is not blank; where interests may be awakened, where labor may yield its best rewards in some share of mental and bodily health, and where the instincts both of home and of nature may have an incentive and a partial realization. This is a noble ideal, and we doubt not a perfectly practicable one. The bane of our asylums is the torpor which they unconsciously and unintentionally impose. How often do we see the chronic lunatic killing time with hugging his delusions; how often the poor epileptic sitting vacantly waiting for the next fit!

The new asylum at Wernersville is exceptionally well located for the humane project of giving the chronic insane both a field of action and a home. In one of the most superb pastoral valleys of Pennsylvania, surrounded with not lofty but picturesque spurs of the South Mountains and Blue Ridge, it is fixed upon a fertile soil and in a climate of health-giving qualities. On the neighboring hills are a group of sanitariums which for years have demonstrated to the public the wholesomeness of this locality, while on the surrounding plain is an agricultural wealth which has always been the pride of the State. It is not easy to see how the natural advantages of the place could be surpassed, or how the authorities could have acted more wisely in selecting a site. The trustees will have under their care a large tract of farm-land, which will contribute its share to the support and health of the community.

The internal administration at Wernersville, and its results, will be watched with much interest. The design is to exempt as much as possible the physician in charge from the burden of administrative details; but with this there is no design to curtail his legitimate authority. This plan is in line with advanced thought on the subject of the internal administration of asylums. As we all well know, it is still subject to fierce criticism, and by none so fierce as by the asylum-superintendents, who suffer the most, and proclaim their sufferings the loudest, from the present infliction of housekeeping duties. This is one of the paradoxes, or anomalies, of present asylum-politics, and it is one

which, for better or worse, the trustees at Wernersville have faced squarely. The one disadvantage that their otherwise admirable site imposes, is, perhaps, its remoteness from large centers of scientific and medical activity. But this is not insuperable. The trustees have started with a good staff, who need have no difficulty, if they honestly desire, even in the rural depths of Berks County, in keeping up with the times.

We have been surprised sometimes to hear it said that the chronic insane do not offer subjects for fruitful scientific investigation: as if only the acutely insane are the legitimate objects of study for the pathologist. We protest earnestly against this erroneous thought. We beg to remind the reader that CHARCOT established at once his fame and the modern science of neurology on the studies that he made on the neglected old women in a Paris almshouse. Of the acutely insane few die, and the friends of fewer still grant autopsies. The morbid anatomist finds his best field in such an institution as that at Wernersville. We hope that it will not be said of it as of a similar hospital in another State, that it has no pathologist and that not ten per cent. of the fatal cases are examined *post mortem*. Let us trust that good clinical and pathologic methods will prevail, as well as good housekeeping.

We understand that a formal opening of the Wernersville Asylum will be held in the autumn. If so, we hope that it will cause to dawn then upon the profession and the public what an admirable institution of the kind we have in Pennsylvania.

THE TRANSMISSION OF TUBERCULOSIS THROUGH INFECTED MILK AND MEAT.

THE communication of tuberculosis by the flesh and milk of tuberculous animals has been sufficiently demonstrated to justify and demand the employment of stringent measures to lessen the possibility of such propagation of the disease. The unexpected discovery of tuberculosis in a herd of apparently healthy and well-nourished milch-cattle is not an infrequent occurrence, and a sufficient number of observations have already accumulated to demonstrate the utility and value of tuberculin as a diagnostic agent. It is fair to presume that if the same rigid measures of inspection and the same precision in diagnosis as have been employed in these isolated cases were extended to all cattle in the State, the results would exhibit a far greater prevalence of the disease than has ever been suspected.

At present, except in a very limited number of States, the consumer has no guarantee that such standard articles of food as meat and milk are free from disease-producing germs, simply because of the absence of well-digested laws regulating the preparation and sale of these commodities. Milk-inspection, as ordinarily practised in our towns and cities, valuable as it may be in detecting adulteration, is useless in protecting the public against the danger arising from those subtle pathogenic organisms which are at times conveyed by milk. In order to meet and subvert this danger new agencies must be invoked.

Inspection by the State—frequent, intelligent, and rigid—should be extended to the dairy-farm itself, and should embrace not only the thorough investigation of the cattle, but also an inquiry into their care and environment, so that in the course of time tuberculous disease may be completely eradicated and its re-introduction carefully guarded against. Provision should be made, by adequate laws, for establishing such inspection at the very source of danger, as a safeguard not only against tuberculosis, but against all diseases of an infectious type.

The enactment of such laws is always attended with difficulty, on account of the combination of adverse interests, and this opposition is predicated upon the assumption that vested rights are to be interfered with and pecuniary losses imposed by arbitrary administration of the law. Such opposition is to be overcome by making the laws judicious and mutually protective by not only guarding the public health, but also by protecting the interests of the dairyman as well.

The question of indemnification for loss sustained by the destruction of cattle has always been a stumblingblock in the way of this particular legislation. It seems fair and equitable that provision should be made for such reparation. The benefits are universal, and the loss should therefore be shared by the community.

It may possibly be remembered that at the last session of the Pennsylvania State Legislature an earnest effort was made to secure legislation on this important subject, but without avail. The necessity for legislation was admitted, but through the contentions as to the form, the bill failed to secure the necessary support.

Something more is necessary to secure protective

laws than a clear and conclusive argument before our legislators. Public opinion must be molded to a comprehension of the need of measures for guarding the public health, so that the men in our legislative councils shall be obliged to give the necessary relief. A weighty responsibility rests upon the medical profession in educating the masses in the right way of thinking on this subject. To the members of the profession is offered the opportunity for advancing knowledge, and they were derelict in their duty did they neglect an obligation which they owe to their fellow-citizens.

REVIEWS.

Clinical Gynecology: Being a Handbook of Diseases Peculiar to Women. By Thomas More Madden, M.D., F.R.C.S. Ed., Obstetric Physician and Gynecologist, Mater Misericordiæ Hospital, Dublin, etc. Philadelphia: J. B. Lippincott Co., 1893.

The able and conscientious work of this distinguished surgeon and writer throughout a period of many years has justly won for him the respect and admiration of his confrères in the domain of female pelvic and abdominal disease. The volume which he now offers to the medical profession is presumably the offspring of his varied experience, and as such has been seized upon assiduously by the gynecologists who have hoped to profit by the fruits of a busy and successful life spent in active clinical work. In noting the radical changes that have taken place in the methods of gynecologic treatment during the past quarter of a century, Dr. Madden pays a graceful tribute to the American surgeons who, he claims, have surpassed all others in their contributions to progressive gynecology. In many respects, the author in his management of the various pathologic conditions has kept pace with the advanced spirit of the times. Electricity as a gynecologic curative agent has failed in his hands—in this he is in accord with the other leading abdominal surgeons of the world. He recognizes the valuable assistance rendered by ichthyol in pelvic and vaginal disorders, and recommends it as one of the main aids in gynecologic therapeusis. While many such features as these, scattered throughout the volume, render the reading interesting and instructive, there are some startling deviations from the recognized practices of the day, together with omissions of matters of vital importance. Tuberculous endometritis is not mentioned at all, and tuberculous salpingitis, although as shown by statistics (*Johns Hopkins Hospital Reports*) it is present in 8 per cent. of all appendages removed, is merely mentioned as one of the possible varieties of chronic disease of the tubes. The treatment of ovariotomy is notably antiquated. The author adheres to the primitive method of cauterization of the pedicle with the thermo-cautery; in closing the abdominal wound he employs silver-wire sutures, which are now abandoned in favor of silkworm-gut by the vast majority of leading operators; unless there be a spontaneous action, the bowels are not opened until the tenth day, nor are the sutures removed until the same day, the patient thus being exposed to temperature-elevations and to the development of suture-abscesses. In reparation of perineal lacerations, Tait's operation is preferred, notwithstanding the acknowledged superiority of Emmet's method. As an anesthetic, the dangerous and uncertain A. C. E. mixture is recommended. Such failings as these mar a book otherwise acceptable and strong. The work of the publishers has been well done, and the illustrations and diagrams are numerous and valuable.

The Essentials of Chemical Physiology: For the Use of Students. By W. D. Halliburton, M.D., F.R.S., Fellow of the Royal College of Physicians, etc. 8vo, pp. xl, 160, and index. London: Longmans, Green & Co.

Dr. Halliburton is well known to the profession by his contributions to current literature and to students by his comprehensive *Text-book of Chemical Physiology and Pathology*. The present work is not a mere condensation of the larger, but is intended as a guide in the practical study of physiologic chemistry, while giving also brief summaries of the existing knowledge. It is excellently printed and largely illustrated with well-executed cuts.

The text represents, of course, the accepted views on the many complex topics in this department of science. It is to be regretted that writers and teachers of physiology are so frequently indifferent to accuracy in expression of chemic terms. In using the terminology of any biologic science, the physiologist would certainly seek to conform to standards accepted by the authorities, yet in the chemic nomenclature a looseness prevails which is exasperating. The phraseology of the present-day chemistry is fairly exact and systematic, and an effort should be made by all writers to adhere to its principles. We are moved to these remarks by noticing on page 16, the now antiquated and absurd statement that the fats are compounds of fatty acids with glycerin. Under glycerin, the alternative and now approved name, glycerol, is given, but is not again used. So also, such terms as "potassium hydrate," "phosphate of lime," are unwise. The use of such phrases in a text-book like this one interferes with the satisfactory work in the chemistry department of a college. The authority of the distinguished author is such that a student may feel justified in using erroneous or antiquated phrases because he finds them in good company. It is pleasing, however, to note that these defects are not frequent, and that generally the nomenclature is correct and the composition of all important bodies correctly given. The detailed statement of the composition of the urine is a decided improvement upon the confused tables often given, but it would be still more satisfactory if the exact molecules indicated by the terms sulfuric and phosforic acid were indicated. The work is certainly a useful addition to our text-book resources.

Venereal Memoranda. A Manual for the Student and Practitioner. By P. A. Morrow, A.M., M.D., etc. 12mo, pp. 332. New York: William Wood & Co., 1894.

We are told that the aim of this somewhat oddly-named volume is to give a concise exposition of the

nature and treatment of venereal diseases. We are also told that "in the effort to condense so much important material within necessarily narrow limits the sententious style of expression adopted naturally assumed the form of aphorisms." But the aphoristic feature seems to consist merely in the arrangement of the matter in short paragraphs. It is surely not sententious—we doubt if it is correct—to say: "A leukorrhea which would have remained innocuous after a single coitus takes on irritatant properties under the influence of repeated intercourse, developing a potentiality for mischief which it did not before possess;" or, "The man who exposes himself to a possible source of contagion should not linger long in the lap of Venus. 'Cito tuto et, etc.,' is a safe motto."

Again, we are told in the preface to this second edition, for such it purports to be, that "full recognition has been given to modern microbian (*sic*) theories in connection with the etiology of these diseases;" yet we look in vain for any hint or trace of allusion in the text to such theories.

We do not think this book will benefit any class of readers, or add to its author's reputation.

Syllabus of Lectures on the Practice of Surgery. Arranged in Conformity with the American Text-book of Surgery. By N. Senn, M.D., Ph.D., LL.D., Chicago, Professor of the Practice of Surgery and Clinical Surgery in Rush Medical College, etc. Small 8vo, pp. 221. Philadelphia: W. B. Saunders, 1893.

The distinguished author of this little work may be allowed to state its purpose in his own words: "Every teacher of surgery must have felt the need of some short guide to aid him in the lecture-room in presenting the various subjects in a systematic, clear, succinct, and practical manner. The student of surgery during his early college experience is often bewildered by what he hears and reads, and keenly experiences that want of something which should enable him to separate the chaff from the wheat, and to memorize facts which he is expected to retain and apply at the bedside during his future professional career. This little book has been written to meet these requirements."

We must confess that we do not think any professor of surgery of our acquaintance would use this book as a "short guide" in the lecture-room, although it might answer, like the table of contents in a text-book, as an aid in the arrangement of his material. Nor can we see how it can help the bewilderment of the student. He ought not to have any chaff given him; and it seems to us that his facts will be of more use to him if they are in his mind as parts of a systematic and philosophic whole, than if they are "memorized." The true value of such a book as this, and we do not rate it highly, is as a convenient table of subjects to be studied and an exhibit of their main points. As a source of information it is too terse and fragmentary to be of any avail to the tyro, while the experienced and well-informed do not need it.

Our comment is upon the avowed purpose of Prof. Senn's book. His intelligence and learning qualify him for any surgical task, and he has done this one well. But we think it hardly worth the doing.

CORRESPONDENCE.

POTASSIUM PERMANGANATE IN OPIUM-POISONING.

To the Editor of The Medical News,

Sir: At this time, when so much interest is felt in the recent commendation of potassium permanganate as an antidote to the poisonous effects of opium, every personal experience in this connection should prove of interest.

On June 11th, about 10 P.M., I was summoned to see Mr. R., who had taken about a half-hour previously two ounces of laudanum. Upon my arrival I found him unconscious, and breathing with difficulty, with the typical pin-hole contraction of the pupils. I immediately wrote a prescription for a solution of potassium permanganate, of the strength of six grains to the ounce, and despatched a messenger with it to the nearest drug-store a few blocks away. I then gave a hypodermatic injection of apomorphin hydrochlorate, gr. $\frac{1}{10}$, and thus thoroughly emptied the stomach of that portion of the drug that had not been absorbed, and directed that some strong coffee be prepared at once. I gave atropin sulph. gr. $\frac{1}{100}$ hypodermatically, at intervals of fifteen minutes, until three doses were taken, emptied the bladder with a catheter to prevent reabsorption, also using wet towels by flagellation over the chest to stimulate respiration. All efforts at resuscitation seemed futile; the pulse, at first full and bounding, became weaker, the breathing exceedingly difficult and labored, with the intervals between the respirations rapidly lengthening and the pupils gradually dilating, until at 11 P.M., when the permanganate-solution was handed me I had been for more than fifteen minutes able to detect scarcely any pulse-beat, and the respiration was little more than an occasional gasp. The delay in procuring the solution was due to the fact that the drug-clerk had to be awakened, and after a search for the desired article failed to find it, having only just gotten his stock moved in from another building. This necessitated going several blocks further on, and rousing a second clerk to have the prescription compounded, so that it was quite an hour from the time I arrived, and an hour and thirty minutes from the time the laudanum was taken, before the permanganate-solution could be used. I immediately injected into the patient's arm twenty-five minims, and succeeded in getting him to swallow probably a teaspoonful. Within a few minutes the respiration was somewhat improved, and I was able to detect a faint beating of the pulse. I repeated the injection, which was followed by still further improvement in the symptoms. The hypodermatic injection of the solution was then continued at intervals of fifteen minutes until seven were given, three in the right arm, two in the left, two over the region of the heart. The patient was walked more or less constantly. After each injection decided improvement was noted, so that whereas at 11 P.M. he was in a state of profound coma, at 1 A.M., or two hours thereafter, and three and a half hours from the time of taking the laudanum, which was equivalent to sixty-four grains of the crude opium, and sixteen of its principal alkaloid, morphin, the patient was seated on the veranda conversing quite intelligently with me and the members

of his family. I then deemed it quite safe for him to retire for the night, but placed a close watch over him. During the succeeding day he remained in bed, but on the following morning he was at his office as usual. I think I can safely say that but for the timely arrival of the permanganate-solution he would undoubtedly have been dead within fifteen or twenty minutes. I may also add that for several days there was considerable inflammation at the site of each puncture, and I directed that flaxseed-poultices be applied, and be permitted to remain over night, whereupon it promptly disappeared.

Respectfully,

C. EVANS JOHNSON.

ATLANTA, GA.

UNPROFESSIONAL CONDUCT, OR IMPOSITION?

DR. JOHN C. SUNDBERG, U. S. Consul at Bagdad, sends us an advertisement of "animal extracts," taken from a New York daily newspaper, and expresses wonder whether the physician, according to whose formula the "extracts" are prepared, is guilty of unprofessional conduct or the "chemical company" by which they are manufactured, of unauthorized use of the physician's name. "Cardin," he goes on to say, "is of Eastern origin, children's hearts being considered specific in the treatment of heart-disease and carcinoma, and an hereditary Bagdad saint, with a saintly pedigree dating back eight centuries, is reputed to have agents constantly in the field to capture children, that he may eat their hearts. It is highly probable that the Babylonian fakirs gave their illustrious American confrère the first idea of the therapeutic value of heart-extract and other such preparations."

SOCIETY PROCEEDINGS.

AMERICAN ORTHOPEDIC ASSOCIATION.

Eighth Annual Meeting, held at Washington, D.C., May 29, 30, 31, and June 1, 1894.

FIRST DAY—MAY 29TH.

DR. ROYAL WHITMAN, of New York, read a paper entitled "Observations on Bending of the Femur in Adolescents." This condition, he said, developed in adolescents who had grown very rapidly, or who had been subjected to overwork or strain. In 1889 E. Müller had reported, as a new type of disease, four cases of bending of the neck of the femur. During the past two years four such cases had come under Dr. Whitman's observation, two of which he reported. The first of these cases was in a boy, who for a year, without known cause, presented a gradually increasing limp, and for six months had found it necessary to use a cork sole. The appearance was that of congenital dislocation of the hip. The actual shortening was three-fourths of an inch, and the apparent shortening was three and a half inches. There was no limitation of flexion, extension, or rotation of the limb. The movements were free and painless. The head of the bone was in the acetabulum. In the second case the diagnosis had been made at an earlier stage. The patient was a boy of sixteen years, in whom there was a bending of both femoral necks. At the time he came under observation there was nothing of special importance, except for slight eversion of the feet and flat-foot. There was slight knock-knee; the trochanters were a little above Nélaton's line; the gait was somewhat rolling in character, and abduction was about one-third of the normal. Rest and gymnastic exercises were advised, but were not carried out. The boy appeared three months later, with a much worse gait. Behind each trochanter was a deep sulcus; the legs were adducted, and on attempting to flex them they were immediately crossed one upon the other. There was no pain or spasm. In the course of ten months adduction had increased, so that it was only with the greatest effort that the legs could be passed by one another. It was believed that the bending of the neck had nearly reached its limit, and it was therefore proposed during the summer to divide the leg below the trochanter. In all the cases flexion of the thigh has caused the trochanter to be more prominent.

The bending appears to be a comparatively rapid process, and the head of the bone is usually depressed downward and backward in the line of least resistance. When the condition is one-sided, the symptoms are stiffness and limp due to shortening; if both sides are affected, adduction of the leg causes a peculiar, rolling gait, due to the interference of the knees. The character of the pain is similar to that seen in knock-knee and the bow-legs of adolescents. The treatment consists in (1) removing the exciting cause, which is usually overwork or some special occupation causing strain on the parts; (2) local massage, manipulations, and passive motion in the direction of the restricted motion; (3) osteotomy below the trochanter. In the stage in which these patients usually presented themselves, the diagnosis offered no particular difficulty. In all cases of dislocation upward, the neck of the displaced bone could be traced upward and the head of the femur made out; in bending of the femur only the prominent trochanter could be felt. If the distortion were due to necrosis or other chronic disease, the evidence of such disease would be apparent. There was no local swelling or infiltration, and the abduction and inward rotation were the only motions which were limited. When unchecked the deformity showed a marked tendency to increase upward.

DR. WALLACE BLANCHARD, of Chicago, then exhibited his hip-splint, which he said he had used with satisfaction for twenty-two years. Longitudinal traction was made by adhesive straps, and lateral traction by a band around the thigh. The main strip extending down the back of the thigh and leg secured the very necessary immobilization. The splint should be molded to the body and limbs, and should not cause pain. It was both a bed-splint and a walking-splint, and should not be removed except for repairs. From eight to nine pounds of traction were usually sufficient for children—although fifteen or twenty pounds might be necessary for the first day or two.

DR. A. M. PHELPS, of New York, discussed "The Question of Priority in the Application of Lateral Traction to relieve Intra-articular Pressure in Hip-joint Disease." His first paper on this subject had been published in the *Medical Record*, May 4, 1889, and in August of the same year, Dr. Blanchard had published a paper in which he stated that he had been using lateral traction. Sayre claimed to have applied lateral

traction to a patient in 1872, but, as a matter of fact, the straps were applied to overcome the inward rotation. The Germans had mentioned lateral traction in 1873, but only as an argument against the usual form of traction, as they did not believe in traction at all.

In the discussion on the foregoing, DR. A. M. PHELPS said that the chief objection to Blanchard's splint was the fact that it did not extend below the bottom of the foot.

DR. BENJAMIN LEE, of Philadelphia, remarked that in the hip-splint used by Dr. Taylor and himself in 1862, he thought lateral traction was made.

DR. WHITMAN said that while he believed the principle of lateral traction was good, the mode of its application in Dr. Phelps' apparatus seemed very inefficient.

DR. PHELPS said that if the splint were bent away far enough from the thigh, and the traction were applied just above the knee-joint, it would prove effectual in relieving intra-articular pressure.

DR. L. A. WEIGEL, of Rochester, reported two cases of congenital dislocation of the hip. The first was in a boy who had been delivered after a difficult labor resulting from a foot-presentation. There were a number of convulsions during the first three or four days of life. An abnormal condition of the hand was noticed soon afterward, but the disability of the leg was not observed for a considerable time. The child was inclined to be vicious and destructive. There was a marked spastic condition of the left arm and it was shorter than its fellow. The head of the femur was freely movable on the dorsum of the ilium, and with slight traction and rotation the head could be drawn down to its normal position. It easily returned to the former position. The existence of a rudimentary acetabulum could not be determined. The ophthalmoscope showed double optic neuritis and secondary atrophy from some intra-cranial cause. The long traction-splint was applied for the purpose of maintaining the limb in proper position and enabling the child to walk. Massage was ordered for the arm. A recent examination had shown remarkable improvement. Three weeks ago the boy had begun to stand, and was now walking; the hand could not be opened voluntarily. On removal of the splint, however, the hip returned to its former abnormal position just as readily as before. The mental condition was decidedly improved. In the second case the child had been noticed shortly after a normal delivery to have an abnormality of the right hand, and on beginning to walk, a "hip-limp" was detected. There was a well-marked spastic condition of the arm and leg, and a displacement of the right hip. The dislocation of the hip was readily reduced. The acetabulum was but slightly developed. The mental development of the child was normal. There was no history of instrumental labor, premature birth, or asphyxiation, yet the tonic contraction of the arm was greater than in the first case.

DR. BENJAMIN LEE referred to a case first seen about sixteen years ago, and presenting a spastic condition of the left arm. When seen again quite recently, all of the movements of the hip were somewhat restricted.

DR. F. S. COOLIDGE, of Chicago, suggested that Dr. Weigel's case might have had a dislocation resulting from severe spastic contraction of the foot from disease of the brain.

DR. WEIGEL replied that the spastic condition had existed before birth.

DR. A. E. HOADLEY, of Chicago, read a paper on "The Etiology of Deformities in Knee-joint Disease." His paper was intended as an answer to one read by Dr. Phelps at the last meeting of the Association. He said that anatomy taught that the knee-joint was not a simple hinge-joint, inasmuch as there was no common center around which the head of the tibia revolved. Again, as the condyles were of unequal length, there was a rotation of the tibia upon itself, thus making the knee-joint a very complicated joint. The flexors and extensors were equally balanced in a fully extended limb, but as flexion progressed, the flexors were diminished in power because the tendon of the quadriceps constantly changed its direction until it reached 135°, when the flexors actually became extensors. Thus, a leverage of one and a half inches was gradually diminished to no leverage at all at 135°. Beyond this point it was impossible for flexion to occur voluntarily. Measurements in a number of students showed that with the leg straight, the power of flexion was about seventy-five pounds; when lying down on the back with the leg flexed at right angles and the knee pressing against a block the power of flexion was only about forty pounds; while with the leg at 90° the power of extension was about one hundred and seventy-five pounds. The strongest point of the flexors was weaker than the weakest point of the extensors, and between 90° and 130° there was no appreciable difference in the power of the extensors. In conclusion it was said that the preponderance of power was in favor of the extensors; it had nothing to do with producing the deformity of the limb. Nor was it thought that there was anything in the clinical history to show that the extensor muscles atrophied any faster than the flexors.

DR. W. E. WIRT, of Cleveland, Ohio, gave a mathematic demonstration of the method of determining the amount of force and of the amount of friction.

DR. WHITMAN thought that one important factor—the gastrocnemius muscles—had been left out of consideration.

DR. A. M. PHELPS said he believed the propositions in the paper were incorrect. The results which he had himself obtained by experiment tallied very closely with those of Horton, of Dublin, and represented a force of about thirty-five pounds, while Dr. Hoadley had estimated the force at seventy-five pounds. The same might be said about the other figures. It should not be forgotten that when the leg was flexed the quadriceps muscle acted over a pulley, and its force was necessarily diminished by friction. When in the straight position there was no friction, but when flexed, there was a force so great that it might even cause fracture of the patella. In his own experiments he had found that when the leg was perfectly straight the extensors were at the greatest possible advantage, and that the amount of resistance was two hundred and forty pounds, as against one hundred and thirty-six pounds when the limb was flexed. Again, owing to the insertion of the muscles, they were acting on a lever represented by the distance from the attachment of the muscle to the center of the bone. As the limb was flexed the lateral ligaments were relaxed, and the biceps tendon, being at-

tached to one side of the end of the fibula, was really attached to a lever, having a length equal to the distance from the center of the condyle to this attachment of the muscle. This necessarily rotated the limb outward. His conclusions were that the typical deformity was produced by a voluntary effort to prevent pain by relieving intra-articular pressure.

Dr. John Ridlon, of Chicago, pointed out that no account had been taken of the fact that as a muscle approached its point of full contraction its power diminished.

Dr. Hoadley said that he had considered this point in a portion of the paper which he had omitted in reading. The friction produced by the tendon passing over the pulley was so slight that it could be neglected. Dr. Phelps' experiments had been confined to only one man, whereas his had been made on eighty students.

Dr. E. H. Bradford, of Boston, made some remarks in connection with the presentation of a pathologic specimen from a case of Hoffa's operation for congenital dislocation of the hip. The object of this operation was to make a new acetabulum for the reception of the head of the femur, and Hoffa claimed that as the acetabulum was always the thickest portion of the bone, there was no danger of perforation in curetting out this new acetabulum. That this claim was incorrect was shown in the specimen. It also showed that, although it was not detected on palpation during the operation, the original acetabulum was well developed. Attention was also called to the fact that when the head of the bone was placed in the acetabulum the limb could not be straightened, apparently because of the obstacle offered by the Bigelow Y-ligament. It was, therefore, suggested that the capsule be divided anteriorly. The belief was expressed that if these cases were carefully operated upon, the condition would prove to be a curable one.

Dr. Bradford also presented a specimen of rachitic deformity of the hip in an adult, and a knee-joint showing a periostitis just above the head of the tibia.

Dr. Whitman said that Lorenz's operation was practically the same as the modified operation suggested by Dr. Bradford. He approved of this operation, and agreed with Dr. Bradford as to the obstacles to reduction. He emphasized a point that he believed was not generally fully appreciated, viz., that there was great disability, and often pain or discomfort in these cases of congenital dislocation of the hip.

Dr. Weigel admitted the great amount of disability present in cases of double congenital dislocation. In his cases there had been no difficulty in reducing the deformity. As he believed that in all cases the acetabulum was not rudimentary to the same degree, he thought some cases might be relieved by continued contraction.

Dr. De Forest Willard, of Philadelphia, said that he thought the acetabulum was more seriously deformed in most cases than it was in the specimen that had been presented. When there was a long, oval-shaped acetabulum he did not believe operation was likely to be successful. He had seen great disability, but never true pain.

Dr. Bernard Bartow, of Buffalo, reported the case of a child, three years old, in whom the use of traction continuously for a period of about six months resulted in maintaining the head of the bone in its proper position, so that it would not be dislocated by the application of a reasonable degree of force. This would seem to prove that the acetabulum was fairly developed in some of these cases.

Dr. Wirt said he had seen cases of this kind in which there had been actual pain on walking.

Dr. Phelps said that as not a single case of congenital dislocation had been cured by mechanical treatment, and a cure had been effected by Hoffa's operation, this operative treatment was the only method worthy of trial. If suppuration occurred, there would be reflex spasm, and this would result in serious deformity.

Dr. Bradford said that, judging from an examination he had made of three other dried specimens in the Warren Museum, there was a ridge of bone at the upper and posterior edge of the acetabulum in older subjects, but in children the condition seemed not to be due to an arrest of development, but to genuine *congenital* dislocation. Suppuration following Hoffa's operation was a serious complication. While admitting the great value of operative treatment, Dr. Bradford still felt that as there was not much disability in some adult cases, mechanical treatment should be tried when it held out any prospect of success.

Second Day—May 30th.

Dr. C. G. Page, of Boston, by invitation, read a paper on "Lateral Traction in Hip disease." He said that lateral traction alone did not seem sufficient to give relief. The object of traction was to overcome spasm and "distract" the joint, if possible; and to do this, the head of the bone must move practically in the axis of the neck. Such a force was not at our command, but the resultant of two forces enabled us to accomplish this in practice. The point of application of the lateral force was necessarily considerably below the head of the femur. It had been objected that lateral traction when applied high up shortened the muscles and tended to draw the bone toward the acetabulum; but it should be remembered that the muscles became lengthened and adapted to the new condition. About five pounds of lateral traction should be used to ten pounds of longitudinal traction, and it should be applied at 15°.

Dr. Phelps said he was prepared to indorse nearly all the conclusions announced, but he thought the proportion between the two forces should be about two of lateral to eight of longitudinal traction.

Dr. V. P. Gibney, of New York, read a paper entitled "Final Results in One Hundred Cases of Operation for Deformities following Hip joint Disease." He suggested that it might possibly be better while the disease was still active to give less attention to simple efforts at aiding Nature in protecting the joint, and more attention to the operative correction of the deformities resulting from the disease. As a rule, the long traction-splint prevented exacerbations, and gave the patient comparative comfort. He had had an opportunity to observe for a period of a dozen years the sufferings of those in whom hip-joint disease was allowed to run its natural course, and he had also had an opportunity to observe for a similar period the results of the use of portative apparatus, so that he felt he could hardly be accused of presenting the subject from only one point of view. He reported several illustrative cases, and presented in carefully

tabulated form the results of his operations, and of the treatment with splints and with the weight and pulley.

Dr. Wirt said he had witnessed some of the operations done on these cases, and had followed them for for some time afterward. He thought the method of treatment by osteotomy exceedingly useful; it had certainly given him good results.

Dr. S. Ketch, of New York, thought Dr. Gibney's results indicated that the use of force in the reduction of the deformity was a dangerous practice. In his opinion, it was a plan of treatment that should be abandoned.

Dr. Whitman said that Dr. Gibney seemed to be wavering in his belief as to whether it was profitable to prevent these deformities, as it was so easy to correct them afterward. Surely Dr. Gibney was familiar with many neglected cases in which there had been adduction, flexion, and upward dislocation. The latter condition could not be corrected by any operation. He felt sure that the remarks made bad been directed chiefly against the dispensary class of cases.

Dr. Ansel G. Cook, of Hartford, detailed two cases in which he had obtained gratifying results from this method of performing osteotomy.

Dr. Gillett asked if Dr. Gibney would operate for the relief of the deformity in cases in which there were discharging sinuses.

Dr. Gibney said he would wait for the sinuses to close, and would hasten this process by curetting them. For some time past he had been of the opinion that in some cases in which there were acute symptoms, and deformity already existed, it was best not to forcibly correct the deformity, for this was liable to cause the formation of an abscess in some inaccessible part. In many cases of deep femoral abscess in which it was practically impossible to properly cleanse the abscess-cavities, he thought it wise to let them alone until the disease had exhausted itself. He wished to place himself on record as unalterably opposed to allowing deformity to develop in any stage of the disease; but when changes had occurred in the shaft and neck of the femur as a result of the exanthemata, before the cases came under observation and when there was probably fusion of the neck and head with the acetabulum, he preferred to let the disease run its course. He did not agree with Dr. Ketch that the method of forcible correction should be abandoned. There were many cases with acute symptoms in which no splint could be applied until the deformity had been corrected, and in which traction in bed could only be made upward toward the ceiling. His experience had taught him that after the correction of the deformity, particularly after osteotomy, a short Thomas splint should be worn for some time after the operation.

Dr. Phelps said that in nearly all cases the deformity could be overcome by rest in bed and the use of a weight and pulley.

Dr. Herman Mynter, of Buffalo, read by invitation a paper on "Excision of the Wrist by a New Method." He said excision was usually resorted to only in old, neglected cases, in which it was only possible to remove the fattily degenerated and softened bones piecemeal, thus leaving much tuberculous matter in the wound. He asked what would be the result if the knee-joint, or any other joint, were exsected in such a way. Professor Stuttgar, of Copenhagen, had advocated a new method of making the incision, with the object of gaining better access to the metacarpus. It includes a supplementary incision made longitudinally between the third and fourth metacarpal bones. The superficial and deep palmar arches must, of course, be ligated. Dr. Mynter had found it unnecessary on the palmar side to extend the incision further than the base of the thenar. The whole carpus could be widely opened, and it was extremely easy to excise it in two portions. The cavity was packed with iodoform-gauze, and the wound in his case healed by first intention, except where the gauze was brought out. Eight weeks after the operation the woman was able to extend and flex the wrist and move the fingers.

Dr. F. S. Coolidge, of Chicago, made some remarks on "Osteoclasis," and demonstrated the action of the Lorenz osteoclast. He said that Lorenz had been using this instrument for six years, and had attained most excellent results. The instrument was used for the correction of deformities of the leg. It consisted of two plates, the one movable and the other fixed. The long handles gave tremendous leverage, but the screw-thread was so fine that it admitted of perfect control. The plates were placed at such an angle that in the performance of osteoclasis they would usually be at right angles to the bone at the moment of fracture. With this instrument osteoclasis rivalled osteotomy in its exactness. It fractured the bone in the desired direction, away from the deformity, and within a fraction of an inch of the selected point. The fracture was generally sub-periosteal. With this instrument knock-knee could be even over-corrected at one sitting, without rupture of the ligaments of the knee. A knock-knee brace should be worn constantly for one year afterward, at which time a cure would have been effected. The pain after the operation lasted usually only about twenty-four hours. This method corrected the deformity as rapidly as osteotomy, and without its dangers, slight though they were.

Dr. Halsted Myers, of New York, said that if it were necessary to wear a knock-knee brace for one year after the operation, the method possessed no advantage over purely mechanical treatment, for a cure could be effected with the latter in about the same time.

Dr. Phelps said that if the Rizzoli osteoclast were made sufficiently rigid, it would be found about the best instrument obtainable. Next to this came the Grattan osteoclast. He thought osteotomy should not be performed when osteoclasis could be done, but the latter was not suitable for producing fractures near a joint. From our knowledge of the pathology and etiology of genu valgum it was hardly to be supposed that the deformity could be removed by osteoclasis without either osteotomy or osteoclasis in the shaft of the bone.

Dr. Coolidge said he considered that the instrument accomplished its best work in the correction of the anterior and posterior flexions of the knee-joint.

Dr. Royal Whitman, of New York, opened the discussion on the subject of "Flat-foot." He said that Dr. Shaffer's theory was that flat-foot was caused by primary contraction of the tendo Achillis. Each individual muscle had been accused in turn of being the primary cause of this affection. In most of the theories that had been advanced, he thought effect had been mistaken for cause. Flat-foot was the result of the relative disproportion between the work to be performed and the

weight to be supported, and the weight of the supporting structures. It was most commonly brought about by habitual improper attitudes. Flat-foot was a dislocated foot, and hence the resistance of the tendo Achillis was often apparent rather than real. If flat-foot was to be cured, this dislocation must be reduced, and kept reduced. Finally, the balance of power must be regulated by treatment directed to the muscles, and the position assumed by the foot. Flat-foot, according to his experience, was an eminently curable affection, the age of the patient and the duration of the condition being important factors. He did not believe in cutting operations of any kind, as he had never seen a permanent or satisfactory result from them. These remarks were based on an experience with upward of one thousand cases of flat-foot.

Dr. Weigel said he had been much pleased with Dr. Whitman's method of treatment. He had simplified somewhat the preparation of the pattern by making it out of three layers of crinolin, applied to the foot in strips dipped in thick plaster-of-Paris cream. The plates were cast after this pattern, and were made of an alloy, the chief ingredient of which was phosphor-bronze.

Dr. Ansel G. Cook, of Hartford, said that if the old flat-foot springs were properly made they would meet every indication for treatment.

Dr. Whitman objected to these springs strongly, on the ground that they allowed a lateral broadening of the foot.

Dr. Cook replied that the lateral pressure was furnished by the patient's shoe.

Dr. A. Jacobi, of New York, by invitation, opened the discussion on "Rachitic Deformities." He spoke of the rapid increase of rickets in this country during the past thirty years as a result of unrestricted immigration, and said that in the future the treatment of this condition would be a social as well as a medical problem. He then gave a detailed and graphic description of the various lesions and deformities due to rickets. Referring to the head, he said that it was possible for craniotabes to entirely disappear if the rachitic condition which had produced it had not lasted for any great length of time. The frequent occurrence in rickety children of the so-called "Hutchinson teeth" had probably given rise to the belief that all rickets was the result of syphilis. Many cases of so-called "growing pains" were nothnig more than examples of rachitic epiphysitis. It should be remembered that in rickets the muscles suffer as well as the bones, and that both the voluntary and involuntary muscles may be involved. Rachitic pseudo-paralysis was not paralysis at all, but simply a weakness of the muscles. The heart was usually rather large, and the arteries small. The muscular coats of the stomach and intestine were involved, and hence constipation was an early and prominent symptom.

Dr. Benjamin Lee, of Philadelphia, in continuing the discussion on rachitis, spoke particularly of "Its Various Manifestations, Diagnosis, Differential Diagnosis, and Prognosis." He paid especial attention to rickets in its early stage. It was essentially a failure on the part of the system to assimilate the earthy salts, especially the salts of lime. It was a well-established fact that children might be born rachitic. It was not uncommon for the rachitic infant to appear well developed and robust during the first months of life, and, consequently, the true condition was often overlooked. Tetany and laryngismus stridulus were common symptoms. The utmost care should be observed to avoid confounding the early symptoms with those of simple bronchitis and gastro-enteric catarrh. Rickets, and its congener, scurvy of infancy, had been rapidly increasing recently, quite probably because of the extensive use of sterilized milk.

Dr. S. Ketch, of New York, spoke of "The Local, Mechanical, and Constitutional Treatment." He said that one of the most important means in preventing deformity was the avoidance of injurious positions in the early stages of rachitis. Especially was this true in the stage of tenderness. The portative frames were useful in carrying out the postural treatment. Cautious manual pressure made daily was an important measure; climatic and hygienic treatment should not be forgotten, and the medicinal treatment should be adapted to the individual case. The ease with which the bones could be sprung toward their normal position should be the measure of the force to be employed. It should not be painful, but should be kept up for a number of minutes. It should be a cardinal rule that as long as the bones were in the stage of softening mechanical treatment should be persistently followed.

Third Day—May 31st.

Dr. De Forest Willard, of Philadelphia, read a paper on "The Operative Treatment of Rachitic Deformities." He said that in manual correction of rachitic deformities, the pressure should be made momentarily and intelligently. He had never seen sloughing occur under these conditions. Straightening should take place before fracture, although "green-stick fracture" occasionally occurred. There was but little pain following the application of such force. In a number of instances in which he had compared forcible straightening and osteoclasis, he had found that the straightening was more pleasantly and more efficiently accomplished by forcible straightening, even in children of five or six years of age. Osteotomy, he considered the operation *par excellence* for rachitic deformities. He had seen suppuration occasionally follow the performance of cuneiform osteotomy, but in the other forms of osteotomy it had almost never occurred in his practice, and primary union was the rule. He preferred not to use an Esmarch bandage, for when there was a free flow of blood there was less likelihood of an inflow of air. It was true there was a slight mortality connected with osteotomy, yet he would like to see the statistics of the last few years, for he had observed no deaths and had heard of none. He did not believe a bone could be fractured with an osteoclast until all the soft tissues had been compressed and lacerated down to the periosteum; and, consequently, he considered osteotomy better than osteoclasis.

Dr. Weigel said that with ordinary care and supervision after the operation, he considered either linear or cuneiform osteotomy perfectly safe, and preferable to osteoclasis. He had entirely discarded drainage.

Dr. Ryan, of Cincinnati, thought the chief difference between osteoclasis and osteotomy was the difference between precision and uncertainty. He thought cunei-

form osteotomy had been practically abandoned except for the anterior curvatures of the tibia. He did not think osteotomy should be performed before the age of four or five years, as before this there was likely to be a recurrence of the deformity.

Dr. Gillette said he had never done osteoclasis, because he had always felt that it lacked precision. He then detailed his experience with a case of osteotomy which had been followed by non-union.

Dr. Cook said he had done a number of osteotomies, and had always sealed the wound. He had never seen any pus in any of these wounds.

Dr. Bartow, of Buffalo, said the fear of injuring the soft parts by osteoclasis appeared to him to be not well founded. With the osteoclast one could often make a green-stick fracture, and thus not only reduce the deformity, but obtain the benefit of the partial fixation offered by the bone itself.

Dr. W. R. Townsend, of New York, said he had seen one case in which Mr. Grattan had himself produced a laceration of the soft parts by the use of his osteoclast. As no special antiseptic precautions were taken in the preparation of the field of operation previous to doing osteoclasis, such slight lacerations might offer an entrance for septic germs.

Dr. Coolidge said that Lorenz had effectually obviated this difficulty by the use of pads of very thick rubber.

Dr. Bartow said that he had avoided such lacerations by applying a piece of moleskin plaster at the point where the pads and girdles of his Rizzoli instrument were to make pressure.

Dr. Ketch said he did not think any of these cases recovered without at least some simple manipulations. He would like to hear from the others about the "growing-out" theory.

Dr. Ryan replied by detailing the history of four boys in a family under his constant observation, in whom these deformities had disappeared as the children had grown up.

Dr. Willard said that he now seldom did cuneiform osteotomy, but when he did he left the wound open. When there was a very free effusion of blood it seemed that sufficient callus was not thrown out. This might explain the case of non-union reported by Dr. Gillette. Bad results were often due to the faulty application of dressings by inexperienced assistants. The most common mistake after osteotomy was in allowing the patients to go around without support. Some form of support should be worn for one year.

Dr. J. C. Schapps, of Brooklyn, read a paper entitled "Relief of the Spondylitic Spine from the Concussion of Walking." He said that to minimize the concussion of walking he had for about two years been using thick rubber heels, over half an inch thick. These should not be nailed, but stitched to the shoe.

Dr. Bernard Bartow, of Buffalo, read a paper on "Elastic Traction in the Immediate Treatment of Club-foot." His method of employing elastic traction was modelled after that of Mr. Barwell. His object was to supplement tenotomy by grasping the anterior part of the foot, and abducting and twisting it more nearly into its normal relations. Over-correction was secured by elastic bands attached by adhesive plaster at the base of the little toe, and by a second plaster attached at the knee, and near the outer margin of the patella. The varus element yielded particularly well to this method.

Dr. Newton M. Shaffer made some remarks on the value of intermittent traction in general, and particularly its beneficial influence on the nutrition of the parts.

Dr. W. E. Wirt, of Cleveland, O., read a paper entitled "Phelps' Method for the Cure of Club-foot in Adults." He reported three cases, ten, nineteen, and twelve years old, respectively, in which he had performed the operation of Phelps. He believed that tenotomy, the open incision and removal of the tarsal wedge, and sometimes the removal of the astragalus, would in most cases result in securing a useful foot. The skin in adults, and in some older children, would not stand the strain, and would slough.

Dr. Weigel reported a case of double club-foot and double club hand in which there was an extreme degree of deformity. In another case, that of a girl of twelve years, he had done Phelps' operation on one foot, and had removed the astragalus from the other foot. The latter gave a much better result. The trouble with Phelps' operation was that, with it, it was almost impossible to secure a complete correction of the varus.

Dr. W. R. Townsend said that the secret of Dr. Phelps' success in these severe cases was not in the open incision, but in the tremendous force which he used. The limitations of the operation were greater than had been supposed, for it was not indicated in very mild cases, and when there was retraction of the soft parts and extreme bony deformity, it was bound to fail.

Dr. Ketch said that in cases in which the bony distortion exceeded the contraction of the soft parts, Phelps' operation was not a success.

Dr. Coolidge, on behalf of Dr. Halsted Myers, of New York, described a new method of operating on these cases. When it was necessary to remove one of the bones of the foot, Dr. Myers advised making a small incision over the bone, and scooping out with a Volkmann's spoon all the spongy tissue in the interior of the bone. Then, with comparatively little force, the foot could be brought into position.

The discussion on flat-foot was then resumed. Dr. N. M. Shaffer, of New York, spoke of the mechanism of the production of flat-foot, and illustrated his remarks with a mechanical model. There was, he said, practically no motion at the foot, and the center of motion of the ankle-joint passed transversely through the astragalus at about the outer malleolus. Motion of the ankle-joint took place on a remote axis. Looking at the model it could be seen that when the gastrocnemius was shortened, there would be a flattening of the plantar arch, and that if these tissues were weak this arch would give way. The calcaneous variety of club-foot was exactly the reverse of flat-foot. In order that flat-foot should be produced, the motion should be blocked at or near a right angle.

Dr. S. L. McCurdy, of Dennison, Col., remarked that he had made some experiments, and had found that for graceful motion an ankle-joint was unnecessary.

Dr. Wirt said that the model was defective in that it represented one as walking with the foot perfectly flat.

Dr. Ketch said he did not agree with Dr. Wirt that

each time the body advanced, the heel was raised to the extent of causing contraction of the gastrocnemius.

DR. BARTOW said he had always thought that the flattening of the arch preceded the shortening of the muscles.

DR. HENRY LING TAYLOR said that flat-foot was a disease of relaxation, and the shortenings were consequent upon the position.

DR. S. L. MCCURDY then described a new method of excising the knee-joint, the object of which was to avoid injury of the extensors and the muscular structures composing the hamstrings and flexors. This was accomplished by a peculiar method of sawing the bone, and by the use of a special retractor or guide.

DR. ANSEL G. COOK read a paper on "Fixation and Traction in the Treatment of Fractures into Joints." He expressed the opinion that early passive motion only disarranged the fragments of bone, increased the production of callus, irritated the injured ligaments, and by increasing the inflammation tended to produce ankylosis. Immobilization was useful only during the active stage of inflammation, or until the broken ligaments and bones had become united; hence immobilization in a case of fracture into a joint should be kept up from three to eight weeks, and then massage employed.

DR. RYAN said it was his practice in fractures of the elbow to begin daily passive motion about the sixteenth day.

DR. E. G. BRACKETT, of Boston, said he had often increased the amount of motion by resting the parts in splints after passive motion had been too early or too vigorously resorted to.

DR. W. R. TOWNSEND, of New York, read a paper on "Tuberculous Disease of the Shoulder-joint." He stated that at the Hospital for Ruptured and Crippled, among 3244 cases of tuberculosis of bones and joints, 21 were of the shoulder-joint, 11 being in males and 10 in females. The disease had appeared at an average age of ten years. In five of the cases there was tuberculous disease of other joints, but in every instance the shoulder had been the last to be affected. The primary lesion was more likely to be in the bronchial tubes or lungs than in the bones. The symptoms were pain, reflex spasm, atrophy, change of contour of the parts, loss of function, enlargement of axillary glands, shortening of the arm, and ankylosis. The reflex spasm was the most important, and was well marked in the deltoid on abduction of the arm. Ankylosis, partial or complete, was the common termination. The average duration was two or three years. The condition might be mistaken for rheumatic arthritis, dislocation of the humerus, or osteomyelitis of the upper portion of the humerus. The prognosis should be considered from the effect on the constitution, as well as locally. Most of the cases presented partial ankylosis when first seen. There were two methods of treatment—one, simple immobilization; and the other, traction, with portable apparatus. Excision had been held to be dangerous, but the statistics were gathered from operations in the pre-antiseptic period. The growth of the humerus was largely from the upper epiphysis, and hence, in early life the removal of the epiphysis would stop the growth of the arm. With partial excisions, the mortality should be very low. In adults the tendency to pulmonary complications was greater; hence the disease should be removed as early as possible in them, if possible by a partial operation. The best operation was the subperiosteal one of Ollier. In children partial operations were more likely to give good results than mechanical treatment. The paper included a detailed account of seven cases of ordinary shoulder-joint disease.

DR. KETCH said he saw no more reason for operating in tuberculous disease of the shoulder-joint in children than in tuberculous disease of the other joints.

DR. SHAFFER said that he had treated these cases with a simple extension-brace, and with very satisfactory results.

DR. RYAN saw no occasion for operating on these cases any more than other cases of tuberculous disease of joints. His experience with mechanical treatment had been favorable in this class of cases.

DR. JOHN RIDLON, of Chicago, said he had always found the mechanical treatment very satisfactory, although he had not obtained such good results with Dr. Shaffer's traction-brace. His treatment had consisted in fastening the arm to the body, supporting the hand with a halter, and applying adhesive straps so as to still further immobilize the shoulder.

DR. HENRY LING TAYLOR, of New York, read a paper on "Infantile Scorbutus." He said that at a recent discussion no less than seventy cases had been reported. The symptoms were a dusky pallor, emaciation, excessive peevishness, and general sensitiveness; exquisitely tender swellings without local heat near the joints of the lower extremities, due to sub-periosteal hemorrhage; inability to move the lower extremities and trunk; spongy or bleeding gums near the erupted teeth; and most significant of all, rapid improvement on a diet of fresh milk and orange-juice. The peri-articular swellings, he said, had been frequently mistaken for rheumatism. Last summer a baby of a year old that had been fed on condensed milk had been brought to him for a supposed spinal or hip affection. There was a spinal projection in the upper lumbar region, with rigidity, in addition to the usual symptoms of scurvy. The cachexia, the spongy and bleeding gums, the powerlessness of the legs, the exquisite sensitiveness and a swelling above the right ankle made the diagnosis clear. All the symptoms disappeared within three weeks after putting the child on pasteurized milk and orange-juice. Other cases have been mistaken for hip-disease, osteitis of the knee, and sarcoma of the knee, and infantile paralysis.

DR. JOHN RIDLON, of Chicago, was elected President for the ensuing year.

NEWS ITEMS.

The American Electro therapeutic Association will hold its fourth annual meeting at the New York Academy of Medicine, September 25, 26, and 27, 1894. The following program has been arranged:

President's Address: Dr. W. J. Herdman, of Ann Arbor, Mich.

The Report of the Committees.—On Standard Coils: Dr. W. J. Morton, of New York. On Standard Meters: Dr. Margaret A. Cleaves, of New York. On Standard Electro-static or Influence Machines: Dr. W. J. Mor-

ton, of New York. On Constant Current Generators and Controllers: Dr. W. J. Herdman, of Ann Arbor, Mich. On Standard Electrodes: Dr. A. Lapthorn Smith, of Montreal. Stand and Electrode for Static Electricity—Exhibit: Dr. Lucy Hall-Brown, of Brooklyn. On Electric Light as a Therapeutic and Diagnostic Agent: Dr. Margaret A. Cleaves, of New York.

The Constant Current.—Physics: "Current Distribution," Mr. W. J. Jenks, of New York. Physiological Effects: Prof. H. E. Dolbear, of Boston. Therapeutic Uses—General: Dr. A. D. Rockwell, of New York. Gynecologic: "The Galvanic Current in Catarrhal Affections of the Uterus," Dr. G. Betton Massey, of Philadelphia. Suites éloignées du Traitement électrique Conservateur Gynécologie. Grossesses consécutives: Dr. Georges Apostoli, of Paris. Metallic Electrolysis: M. le Docteur Georges Gautier, of Paris; Dr. W. J. Morton, of New York; Dr. Margaret A. Cleaves, of New York; Dr. A. H. Goelet, of New York. Treatment of Urethral Stricture: Dr. Robert Newman, of New York. Diseases of the Eye—Electro-Therapeutics: Dr. L. A. W. Alleman, of Brooklyn, N. Y. Notes on Goiter and Improvements in Apparatus for its Treatment: Dr. Charles H. Dickson, of Toronto. Diseases of the Throat: Dr. D. S. Campbell, of Detroit. The Action of Electricity on the Sympathetic: Dr. A. D. Rockwell, of New York. Diseases of the Nervous System: "The Treatment of Neuritis by the Galvanic and Faradic Currents," Dr. Landon Carter Gray, of New York. Electric Sanitation: Prof. John W. Langley, of Cleveland. Physics of the Electric Light in Relation to Organized Matter: Prof. John O. Reed, of Ann Arbor, Mich. Hydro-electric Methods: "Physics and Appliances," Mr. Newman Lawrence, of London. Special Hydro-electric Applications: Dr. Margaret A. Cleaves, of New York. The Hydro-electric Therapeutics of the Constant Current: Dr. W. S. Hedley, of Brighton, England.

Induction Currents.—Physiologic Effects: Dr. W. J. Engelmann, of St. Louis, Mo. Therapeutic Uses—General: "General Faradization," Dr. A. D. Rockwell, of New York; Dr. A. H. Goelet, of New York. Gynecologic: Dr. H. E. Hayd, of New York; Dr. A. Lapthorn Smith, of Montreal.

Sinusoidal Currents.—Physics: Mr. A. E. Kennelly, of Philadelphia. Physiologic Effects: Dr. W. J. Herdman, of Ann Arbor, Mich.; Dr. J. H. Kellogg, of Battle Creek, Mich. Therapeutic Uses: Dr. Margaret A. Cleaves, of New York; Dr. William James Morton, of New York; Dr. J. H. Kellogg, of Battle Creek, Mich.; Dr. Holford Walker, of Toronto; Dr. A. H. Goelet, of New York. Le Courants Alternatifs; leur Transformation; leur mesure et leurs Application thérapeutiques: M. le Docteurs Gautier et Larat, of Paris. On the Sinusoidal-Current Methods of Regulation, the E. M. F. and Resultant Current: Dr. Lucy Hall-Brown, of Brooklyn, N. Y.

Static and Static Induced.—Physics: Prof. Edwin J. Houston, of Philadelphia. Therapeutic Uses: "General Therapeutic Uses," Dr. William James Morton, of New York. The Treatment of Chorea: Dr. D. R. Brower, of Chicago. Static Induced: Dr. Margaret A. Cleaves, of New York. High Frequency Currents derived from Static Machines as per Method d'Arsonval: Dr. J. H. Kellogg, of Battle Creek, Mich.

In Memoriam.—Dr. Wm. F. Hutchinson, Providence, R. I., and Dr. John Chambers, Indianapolis, Ind. (Dr. Robert Newman, of New York); Dr. Plymon S. Hayes, Chicago (Dr. W. J. Herdman, of Ann Arbor, Mich.).

The American Association of Obstetricians and Gynecologists will hold its seventh annual meeting at Toronto, Ont., September 19, 20, and 21, 1894. The following preliminary program has been arranged: (1) President's Address, George H. Rohé, Catonsville, Md.; (2) Personal Experience with Pus Tubes: When to Operate, How to Operate, and the Results of Operation, Jas. F. W. Ross, Toronto, Ont.; (3) Relation of Hysteria to Structural Changes in the Uterus and Adnexa, A. P. Clarke, Cambridge, Mass.; (4) Demonstration of a Mechanism of Intussusception (Rabbits), Robert T. Morris, New York; (5) Nephrectomy, L. H. Dunning, Indianapolis; (6) Treatment of Distention of the Fallopian Tubes without Laparotomy and Removal, Frank A. Glasgow, St. Louis; (7) Hysteria in Pregnancy, W. P. Manton, Detroit, Mich.; (8) Relations of Renal Insufficiency to Operations, Carlton C. Frederick, Buffalo, N. Y.; (9) *a*, Importance of Recognizing Septic Puerperal Endometritis Early, and Its Treatment; *b*, Demonstration of a Portable Operating Table for Gynecological and Abdominal (Trendelenburg) Work, Edward J. Ill, Newark, N. J.; (10) Suspension of Retroflexed Uterus by the Utero ovarian Ligaments, with Report of Cases, Reuben Peterson, Grand Rapids, Mich.; (11) The Element of Habit in Gynecic Disease, Geo. F. Hulbert, St. Louis; (12) Some Results of Ether-Anesthesia in Abdominal Operations, I. S. Stone, Washington, D. C.; (13) Report in Abdominal Surgery, Presenting Cases, A. Vander Veer, Albany; (14) Supplementary Paper on Abdominal Section in Intrapelvic Hemorrhage, M. Rosenwasser, Cleveland; (15) Conservative Midwifery, J. M. Duff, Pittsburg; (16) The Cause of the Thirst Following Abdominal Section, Eugene Boise, Grand Rapids, Mich.; (17) The Care of Pregnant Women, W. B. Dewees, Salina, Kan.; (18) Subject to be announced, L. S. McMurtry, Louisville, Ky.; (19) *Discussion*—Inflammatory Diseases of the Uterus and Appendages and of the Pelvic Peritoneum. (*a*) Introductory Remarks, William Warren Potter, Buffalo; (*b*) Historical Sketch, Edward J. Ill, Newark, N. J.; (*c*) Clinical History, Charles A. L. Reed, Cincinnati, O.; (*d*) Causation and Pathology, Lewis S. McMurtry, Louisville, Ky.; (*e*) Diagnosis and Prognosis, James F. W. Ross, Toronto, Can.; (*f*) Treatment, M. Rosenwasser, Cleveland, O.; A. Vander Veer, Albany, N. Y.; J. H. Carstens, Detroit, Mich.; A. H. Cordier, Kansas City, Mo.; (*g*) Results (a) When Treated; (b) Under Various Methods of Treatment, Joseph Price, Philadelphia, Pa.; (20) Intercurrent Typhoid Fever in Pregnancy, Thomas E. McArdle, Washington, D. C.; (21) Notes on a Case of Cholelithiasis, Frederick Blume, Allegheny, Pa.; (22) Perineal Operations, Joseph Price, Philadelphia.

The Cholera and the Plague.—It is reported that cases of cholera have appeared at Berlin and at Nantes. Four cases of cholera and three deaths have been reported at Adrianople. It is announced on competent authority that the epidemic prevailing in China is the bubonic plague, and of most malignant type.

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ORIGINAL ARTICLE.

THE COMPARATIVE RARITY OF PULMONARY TUBERCULOSIS IN THE HIGHLANDS OF PENNSYLVANIA AND THE ADJACENT COUNTIES OF NEW YORK.[1]

BY GUY HINSDALE, A.M., M.D.,
LECTURER ON CLIMATOLOGY IN THE UNIVERSITY OF PENNSYLVANIA; FELLOW OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

IF the profession were asked what district in the New England or Middle States showed the greatest immunity from pulmonary tuberculosis, the answer would probably be "The Adirondack Mountains." Without, however, disparaging that great health-resort, where such remarkable opportunities for pleasure and recuperation are afforded to the tens of thousands that flock there—a resort to which I am personally deeply attached—I would, nevertheless, call attention to a region much nearer the homes of many of us; in most respects more suitable for continuous residence, and apparently even more healthful than the Adirondack region itself.

The district referred to falls partly within the State of New York and partly within Pennsylvania. The seven counties along the southern border of New York are Chautauqua, Cattaraugus, Allegany, Steuben, Chemung, Tioga, and Broome. The neighboring region in northern Pennsylvania includes the counties of McKean, Potter, Forest, Clarion, Elk, Cameron, Union, and Sullivan, and at some distance to the eastward, Pike County. In all of this region, comprising over 12,000 square miles, nearly equally divided between New York and Pennsylvania (6545 miles in New York, 5557 in Pennsylvania), there is, according to the best available information, a population of over 1000 persons to each annual death from pulmonary tuberculosis. I confess I was somewhat surprised to discover that in New York State the southern tier of counties from Broome westward make the best returns.

Taking the reports of the State Board of Health for 1893, I find that in the maritime district, including New York, Westchester County, and Long Island, there are 400 persons living for every annual death from pulmonary tuberculosis; in the Hudson River district, 550. Next in order comes the Mohawk Valley; then the Lake Ontario and western region; next the central counties; then the Adirondack and northern district, in which there are from 854 to 985 persons living to one death from pulmonary tuberculosis; and finally and best of all, in New York the seven counties of the southern tier, with 1091 persons living to each death from pulmonary tuberculosis. The accompanying map shows this relative prevalence of pulmonary tuberculosis in the State of New York.

During each of the last four years the mortality from pulmonary tuberculosis in the southern tier of counties in New York, in comparison with the total deaths, is far below what obtains in other portions of the State. This is clearly illustrated by the annexed chart. It is evident that from whatever standpoint we look at the subject, the southern tier of counties are the freest from pulmonary tuberculosis.

Among the characteristics of this region are the following:

Population. Sixty-two persons per square mile; engaged chiefly in agriculture.

Soil. Highly productive. Geologic formation, limestone and sandstone.

Products. Hay, oats, potatoes, grapes, standing timber.

Temperature. The mean annual temperature in 1892 was 44.5°, or six and one-half degrees less than in New York City, and three and one-half degrees more than in the Adirondack region. The latest killing frost occurred on April 26th at Jamestown, and the first frost November 5th; this was about the same as in New York, and gave an agricultural season twenty-four days longer than in the Adirondack region.[1]

Rainfall. This varies from 37 to 47 inches annually in the southern tier. The amount is usually less than in other portions of the State.

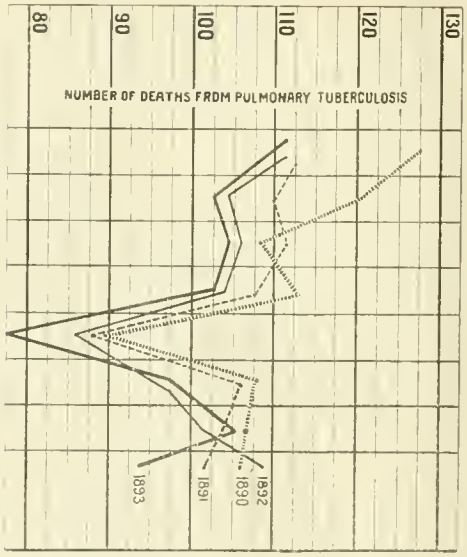
Elevation. In the southern tier of counties the following elevations are noted:

Alfred Center, 1820 feet; Angelica, 1340 feet; Friendship, 1550 feet; Binghamton, 860 feet; Nineveh, 1032 feet; Humphrey, 1500 feet; Sher-

[1] Read at the annual meeting of the American Climatological Association at Washington, D. C., June 1, 1894.

[1] The stations in the southern tier district reckoned were Jamestown, 47°; Alfred Centre, 43°; Angelica, 43°; South Canisteo, 43°; Addison, 45°; Hammondsport, 43°; Binghamton, 54°; Humphrey, 50°.

In the Adirondack district the stations are Lyon Mountain, 39.2°; Malone, 41°; "Number Four," 40°; and stations in Essex and St. Lawrence counties, 42°.



MARITIME DISTRICT.
Population, 3,200,950—per cent. city population, 87.17.

HUDSON VALLEY DISTRICT.
Population, 684,263—per cent. city population, 40.31.

ADIRONDACK AND NORTHERN DISTRICT.
Population, 386,680—per cent. city population, 7.50.

MOHAWK VALLEY DISTRICT.
Population, 376,116—per cent. city population, 30 93.

SOUTHERN TIER DISTRICT.
Population, 405,967—per cent. city population, 26.85.

EAST CENTRAL DISTRICT.
Population, 386,600—per cent. city population, 23.75.

WEST CENTRAL DISTRICT.
Population, 311,000—per cent. city population, 12.28.

LAKE ONTARIO AND WESTERN DISTRICT.
Population, 761,756—per cent. city population, 60.60.

man, 1568 feet; Elmira, 863 feet; Savona, 1053 feet.

It will be noted that these elevations are somewhat below those of the stations in the adjacent district in Pennsylvania, to be considered later.

Position with reference to storm-tracks. The region considered is the farthest removed in New York State from the path of greatest frequency of storms. These are prone to pass down the valley of the St. Lawrence. This southern region is thus spared some of the cloud and rain accompanying the moving areas of lowest barometric pressure.

Accessibility and accommodations. All points in this region are reached by the New York, Lake Erie and Western Railroad, and desirable accommodations may be found about Chautauqua Lake and Jamestown.

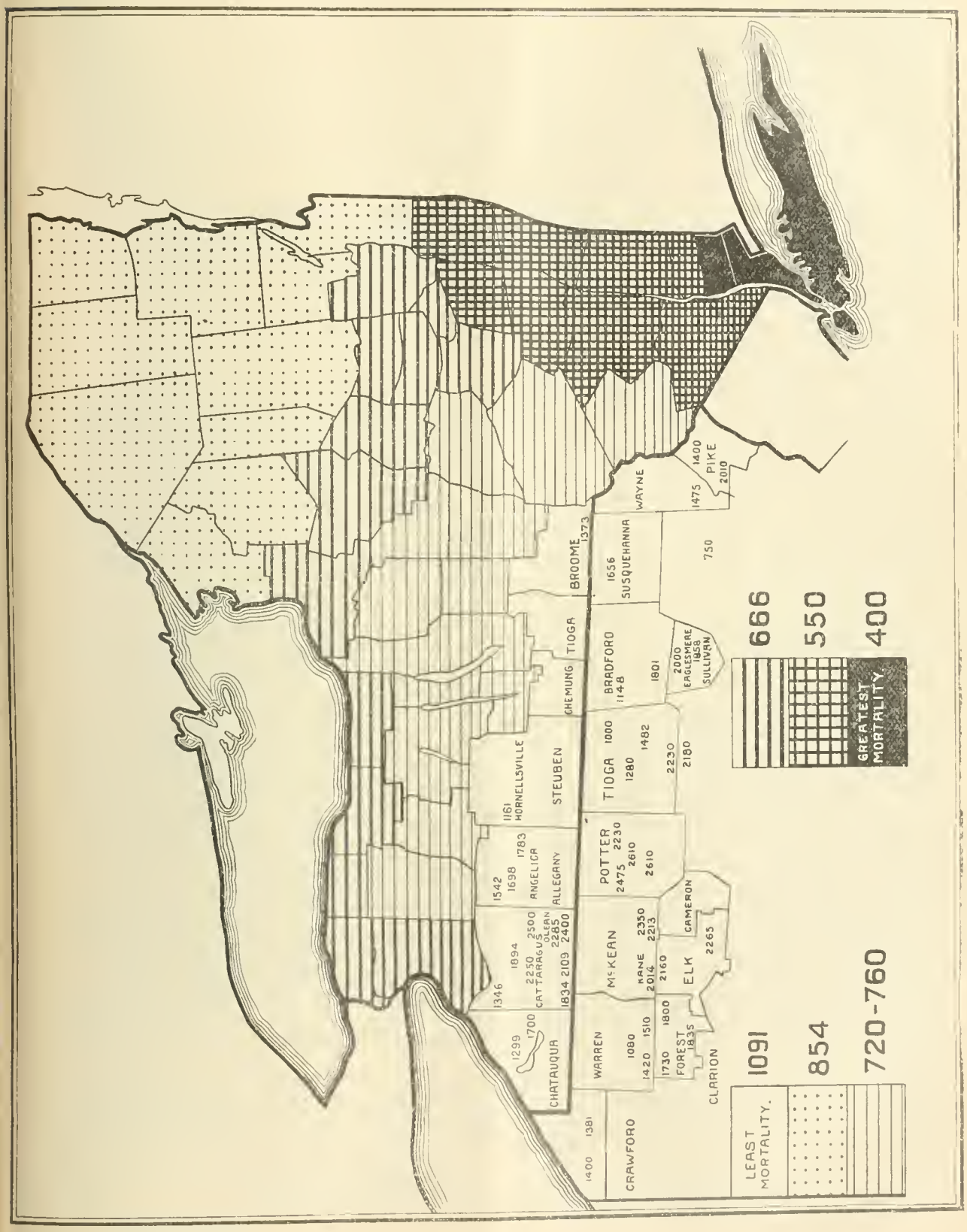
No special claim has been made for this region with reference to the climatic treatment of pulmonary tuberculosis; but in Chautauqua, Cattaraugus, Allegany, and Steuben counties a new and uncontaminated field is opened for the treatment of tuberculous patients, with many opportunities for self-support not found elsewhere.

The Highlands of Pennsylvania adjacent to the New York border are of a somewhat different physical character. The country is wilder, the forests more extensive, the general elevation greater; it is a little cooler, a little drier, a little more primitive. Agriculture is not nearly so remunerative; the industries are more prominently lumbering and mining for coal, iron, and oil. Vast areas of hemlock, and here and there growths of pine cover the mountain-tops, while there are many ridges timbered with beech, birch, and maple. The climate is superb during the months of May, June, July, August, and September; it is distinctly bracing, with the sunshine of more southern latitudes. Cold weather usually sets in about November 1st, and continues in what is called a "solid winter" until the following April. For nearly four months there is usually good sleighing. A temperature of zero is not felt to the same degree as the freezing-point in most places where there is fog, where the air is less dry and bracing, and where the rainfall is greater and the soil more retentive of moisture. Pleurisy and pneumonia are uncommon, and epidemics of diphtheria and scarlet fever are said never to occur. A physician in McKean county writes me: "I have seen but three cases of true diphtheria during my fifteen years' residence here. I have never known a case of pulmonary tuberculosis to originate here, and the cases that come here are greatly benefited or entirely cured."

The broad and high table-land in northwestern Pennsylvania has great topographic advantages over the surrounding region, in that its surface is not so deeply cut by water-courses. The counties of McKean, Forest, Elk, and Clarion comprise the highest ground; the streams take their rise from this "Big Level," as it is called; they are still small and have not produced the deep gullies and narrow valleys which are a common feature throughout northern Pennsylvania.

In the outlying region the chief settlements are necessarily found along these water-courses, while the uninhabited mountain-tops, far above the foggy and fertile valleys, are rarely visited except by lumbermen.

In Sullivan County deep indentations penetrate its entire area; nevertheless, we find on one of the mountain-tops two beautiful lakes, about which are clustered the summer homes of many who have discovered the great benefit to be derived from a



Map Showing the Distribution of Pulmonary Tuberculosis in the State of New York and Adjacent Counties of Pennsylvania.

The small numerals in the map indicate the altitude; the large figures below, the average number of persons living to each annual death from pulmonary tubercu-

residence in this attractive region.[1] The table-land of McKean, Forest, Elk, and Carbon counties is not so diversified, therefore the scenery is not so striking. On the other hand, the county has certain advantages. The timber is of more primitive growth and covers a greater extent; the air is drier and pulmonary tuberculosis is found to be less prevalent. McKean County carries off the palm in this respect. The last and only trustworthy data on this point were afforded in 1880, when it was found that 1330 persons were living to each death from pulmonary tuberculosis during the year. This was a much smaller mortality than obtains in the southern counties of New York (1091 living to each death from pulmonary tuberculosis), and less than one-fourth of that which is annually recorded in New York City and Philadelphia.

The great desideratum in the climatic treatment of pulmonary tuberculosis is a region unfrequented by tuberculous subjects; a country that affords, at moderate elevation, a stimulating climate; a dry and therefore a permeable soil; an evergreen forest; a clear sky, and ample opportunities for out-of-door life. The Highlands of Pennsylvania, and especially McKean County, provide all of these features. Kane, in the southwestern corner of McKean County, has already acquired some reputation as a desirable summer-resort. Personal testimony from patients who have gone there has been exceedingly gratifying, and I have no hesitation in recommending a residence in this locality for all cases of pulmonary tuberculosis in at least the first and second stages.

In order to be utilized to the greatest advantage the patient should reach his destination in the late spring or early summer. He should become acclimated during the milder portion of the year, when the new surroundings make the most favorable impression upon his mind; when in his walks and drives, and in his intercourse with the resident population he is able to form those attachments to persons and things that go so far to incline him to stay beyond the period when most summer visitors are compelled to leave. The fine autumn days in northern Pennsylvania may be to him the most enjoyable and profitable season; the winter, with its abundant snow, unbroken by changes of temperature so common at the seaboard, will be well adapted, under intelligent supervision, for his open-air treatment.

There is no question in my mind that all the good that has been accomplished at the Adirondack Cottage Sanitarium might be repeated in Pennsylvania, and many lives be saved to the Commonwealth. A good hotel, easy walks and pleasant drives, and a convenient railroad constitute the present accommodations; but I hope that the time will come when either the State, in its generous provision for charitable institutions, or else private philanthropy, which seems never to tire of establishing new hospitals in cities, will turn a pitying eye on the tuberculous patient so that he may have the purest air under heaven, and the same skilful and sympathetic treatment that are so generously given to others.

[1] Eagle's Mere and Highland Lake; elevation 2200 feet.

ORIGINAL ADDRESS.

THE PATHOLOGIC CHANGES CAUSED BY CERTAIN SO-CALLED TOXALBUMINS.[1]

An Experimental Study.

By SIMON FLEXNER, M.D.,
OF BALTIMORE, MD.;
ASSOCIATE IN PATHOLOGY, JOHNS HOPKINS UNIVERSITY.

The crystalline principles called ptomaïns which have been isolated by Selmi, Nencki, Brieger,[2] and others from cultures of bacteria do not, as was once supposed, represent the essentially active agents produced by pathogenic bacteria. Since the isolation by Roux and Yersin[3] in 1888, from cultures of the bacillus diphtheriæ, of an amorphous toxic albuminous substance which, as they showed, was capable of causing all of the symptoms of diphtheria, excepting the pseudo-membrane, other albuminous substances have been obtained from a number of pathogenic bacteria.

The researches of Kobert and Stillmark,[4] Martin,[5] and Hellin[6] have led to the isolation from the castor-bean and the jequirity-bean of two amorphous substances—ricin and abrin respectively—which in many respects resemble the toxic albuminous principles obtained from bacteria.

We owe to the investigations of Weir Mitchell and Reichert[7] the knowledge that the toxicity of snake-venom depends upon certain albuminous constituents, and later Mosso and Springfeld[8] separated from the blood of eels an exquisitely poisonous albuminous substance. Moreover, the well-known effects which the blood-serum of one species of animal exerts upon another species has led to the conclusion[9] that the blood of different animals contains distinctly toxic substances.

As to the precise nature of many of these substances, to which the name of toxalbumins has been provisionally given, there is little agreement. They are regarded by some investigators as being enzymes, while a few deny altogether their albuminous nature.

It has been suggested by Roux and Yersin that the

[1] Read before the Philadelphia Pathological Society, April 26, 1894

[2] Berliner klin. Wochenschrift, 1889, No. 39.

[3] Annales de l'Inst. Pasteur, 1888, No. 12, p. 629

[4] Kobert, Lehrbuch d. Intoxicationen, 1893; also, Kobert and Stillmark, Arbeiten des pathologischen Institutes, Dorpat, 1889, iii.

[5] Martin: Proceedings Royal Soc., London, vol. xlvi.

[6] Hellin: Dissertation, Dorpat, 1891.

[7] Smithsonian Contributions, Washington, 1886.

[8] Rend. Accad. Linc., Rome, 1888, 1889.

[9] Loew: Ein natürliches System der Giftwirkung, München, 1893, p. 79.

diphtheria-toxalbumin is an enzyme, and Stillmark holds the same view concerning ricin, while Nencki[1] considers that the proteids of the blood-serum, to which it is believed by many that animals owe their immunity from disease, belong to the same category.

The recent statement of Brieger and Cohn,[2] based upon the study of the properties of a highly refined tetanus-toxin, that this body, which fails to react with Millon's reagent, and responds to the xantho-proteic test, is not an albumin, is not regarded as sufficient to disprove its proteid nature.[3]

Brieger and Fränkel[4] oppose the view of the enzyme-nature of these bodies; and Fermi,[5] who also objects to this view, considers as militating against it the fact that of 114 described pathogenic microörganisms which produce toxins, only 26 produce proteolytic ferments, and that, on the other hand, of 134 known enzyme-producing bacteria only 25 are pathogenic—that is to say, toxalbumin-producing.[6]

The blood-serum of the dog acts with great energy upon the red blood-corpuscles of the rabbit, and Buchner[7] observed that while the blood-serum of these animals is separately capable of destroying a considerable number of typhoid-bacilli, yet when the serum of the dog and rabbit are mixed, the destructive influence of the mixture upon typhoid-bacilli is less than that possessed by either serum alone. As bearing on this question, the experiments of Robert Hartig[8] on the fungus-parasites of plants are interesting. Thus, while certain of the ferments of this origin dissolve the cellulose of plants and not the intercalated wood-gum, there are others that dissolve the gum and have no effect upon the cellulose. According to Hartig the oak is attacked by ten distinct parasites, each of which produces a different ferment. Two of these dissolve starch—are amylolytic—when acting separately, but when combined they are entirely without action on this substance. Does this not suggest an analogy with the mutual destruction or neutralization of the bactericidal principles of the blood of the rabbit and the dog?

Further, we have grounds for believing that the blood possesses the power of destroying the true ferments, as it does certain of the bacterial products, and, moreover, that the true ferments may act in a manner similar to the vegetable toxalbumins in conferring immunity. Hammersten[9] has shown that if rennet and milk are injected separately into the circulation of rabbits the coagulating influence of the ferment upon the milk is much diminished; and Hildebrand[1] has demonstrated an antiferment in the blood of animals rendered immune to certain of the enzymes, especially to emulsin. He[2] has succeeded, moreover, in rendering rabbits more resistant to the bacillus cuniculicida, and even of protecting them against the organism by previously inoculating them with and making them immune to emulsin.

Heating solutions of many of the toxalbumins or blood-serum to 60° C. destroys their activity. Blood-serum kept for thirty minutes at a temperature of 55° C. loses, according to Buchner, its power to destroy bacteria and likewise its globulicidal action. Exposed to a temperature of 54° C. for the same time I have found that dog's serum is still globulicidal for rabbits, although its activity is diminished.

Blood-serum that has lost its bactericidal and globulicidal properties by being kept at a temperature of 60° C. for thirty minutes has not suffered coagulation, nor have demonstrable optic or chemic changes occurred in it. The lost bactericidal property, it is believed by Emmerich and Tsuboi,[3] can be restored by alkalinization and dialysis, a circumstance that they bring forward as bearing upon the question of the chemic *versus* the vital action of the serum. Buchner,[4] it must be mentioned, disputes the results of Emmerich and Tsuboi and claims that the difference that they observed in the effects of the heated serum before and after alkalinization is explicable on other grounds, as, for example, the alteration in the heated serum as a culture-medium. None of these authors, however, mentions the effect of this treatment upon the globulicidal property of the serum, and to determine this I have made the following experiments:

The blood-serum[5] of a dog, collected after twenty-four hours, was tested as to its toxicity, by injecting 1.5 per cent. of the body-weight into the ear-veins of a rabbit. The animal was profoundly affected, soon manifested hemoglobinuria, and died in ten hours.

A second half-grown rabbit, whose blood-count at 11.15 A.M. was 6,080,000 red corpuscles to the c.mm., received 1 per cent. of its weight of unheated serum. It was dead in five minutes, from thrombosis of the right side of the heart. A second-blood-count, made from the lake-colored blood of the left ventricle taken during the death-struggle, showed 3,872,000 red corpuscles per c.mm.

A third control-rabbit received 1 per cent. of its weight of the same serum heated to 55° C. for one hour, without any effect whatever.

Seventy-five c.cm. of the heated serum were now made alkaline with 7.5 c.cm. of a 3 per cent. solution of pure caustic soda and dialyzed through gut for forty-three hours against seventy-six liters of normal salt-solution. The whole volume of serum now equalled 90 c.cm.

A white-mixed rabbit weighing 1600 grams, whose blood-count on March 21st was 5,664,000, and on March 22d 6,368,000 per c.mm., received at 10.20 A.M. an amount of dialyzed serum which corresponded to 1 per cent. of the body-weight of the original serum (16 c.cm. of the original = 19.5 c.c. of dialyzed serum). No immediate effect was produced. At 11.10 A.M. the blood-count was 4,938,000 per c.mm. No hemoglobinuria or other unfavorable symptom had appeared. On April

[1] Correspondenzblatt für Schweizer Aerzte, 1890.

[2] Zeitschrift für Hygiene, vol. xv, p. 1.

[3] Uschinsky (Centralblatt f. Bakteriologie, Band ix, p. 316) succeeded in cultivating the tetanus-organism in a medium composed of salts and asparagin, and free from albumin. The tetanus-poison obtained from this source still gave the reactions mentioned.

[4] Berliner klin. Wochenschrift, 1890, p. 241.

[5] Archiv für Hygiene, vols. ix and xiv.

[6] Fermi and Pernossi (Zeitschrift f. Hygiene und Infektionskrankheiten, Band xvi, Heft 3, p. 435) believe that they have proved that the enzyme produced by the tetanus-bacillus is distinct from the poison tetanin, and that the latter is not a ferment.

[7] Münchner med. Wochenschrift, 1892.

[8] Lehrbuch der Baumkrankeiten. Berlin, 1882. (Quoted by Loew, ibid.)

[9] Schmidt's Jahrbücher, 1887, Band ccxvi, p. 115.

[1] Virchow's Archiv, vols. cxxi, cxxii, cxxxi.

[2] Hildebrand, Münchener med. Wochenschrift, 1894, No. 15, p. 283.

[3] Centralblatt für Bakteriologie, vols. xii and xiii.

[4] Centralblatt für Bakteriologie, vol. xii, p. 855.

[5] In all cases in which blood-serum was used the drawn blood was placed upon ice immediately after having been obtained.

11th the rabbit was still alive and apparently well, the blood-count on this day showing 5,856,000 per c.mm.

Another rabbit, weighing 1800 grams, whose blood-count on March 21st was 6,112,000 per c.mm., and on March 22d 6,208,000, received at 10.30 A.M., March 22d, 1.5 per cent of its body-weight (27 c.c. of the original = 32.5 c.c. of dialyzed serum) of the dialyzed serum. At 11.25 the blood-count was 5,180,000 per c.mm. At 2 P.M. this rabbit, which appeared perfectly well, received a second quantity of 1.5 per cent. of its body-weight. The blood-count at 3 P.M. showed 4,980,000, and on April 11th, at which time the animal appeared normal, it was 5,952,000.

The second animal, it will be noted, received double the certainly lethal dose of the normal, unheated serum, with relatively slight effect. From these experiments it must be concluded that the globulicidal action of the serum is certainly not entirely restored, and if at all, to a minor degree only, by alkalinization. The animals are still living and so far show no evidence of the toxic effects of the serum. Hence, it would appear that the toxic properties are also lost at this temperature.

In considering the pathologic action of the toxic proteids derived from the several sources mentioned upon susceptible animals we shall find reason to treat of them together. Let us consider for a moment the production of immunity, which, for many bacteria and their products, is such a well-known fact that it need not detain us; and evidence is not wanting for the albumins derived from the higher plants, the phytalbumoses.

Up to the present time no one has succeeded in rendering animals permanently immune to the animal toxic proteids, although Sewell[1] claims to have secured in pigeons an immunity to snake-poison which, however, disappeared after a time.

Ehrlich[2] has shown that mice, which are relatively quite susceptible to ricin and abrin, can be rendered in a high degree immune to the action of these bodies. As concerns ricin, he found that a solution having a concentration of 1 to 750,000, in the quantity of 1 c.c. per 20 grams of weight will often kill mice in from two to four days; and in the same dose a solution of 1 to 200,000 will kill these animals without exception. The local effect of the drug is so intense that it is necessary to resort first to feeding, by which means a low grade of immunity is established, which can then be increased by subcutaneous inoculations. The immunity appears quickly. I have repeated Ehrlich's experiments and have confirmed his results.

For example, two mice were fed with gradually increasing doses for ten days, and at the end of this time an immunity equal to the natural resistance of five, as determined by subcutaneous inoculations with control-animals, was already present. From now on the doses were rapidly increased, so that on the twelfth day the resistance was equal to ten; on the sixteenth, to eighty; on the eighteenth, to one hundred and forty, and on the twentieth day, to two hundred and fifty.

These figures are all low, as the calculation is based on the surely lethal dose of 1 to 250,000, and the highest grade of immunity was not determined. Even at this time the immune animals were found not to be indifferent to the mode of introduction; for of two mice, which up to this point had acted in all respects alike, one was inoculated into the peritoneal cavity, and died in one and a half hours, while the other, after subcutaneous inoculation with the same amount (1 c.c. of a 1 to 1000 solution), became slightly sick, but was perfectly well the next day. The blood of the mouse that succumbed was laky. The blood of immune animals, *i. e.*, in a condition that Ehrlich denominates ricin-proof, contains an antitoxic body, which by simple admixture outside the body with a solution of ricin is capable of rendering the latter innocuous.

Having in mind the production of immunity to this substance, I have experimented on rabbits with dog-serum, but so far without success. On the contrary, I found that animals that had withstood one dose of dog's serum would succumb to a second dose, given after the lapse of some days, or weeks, even when this dose was sub-lethal for a control-animal.

Two rabbits received ½ of 1 per cent. and 1 per cent. of their body-weight respectively of dog's serum, twenty-four hours old, on January 19, 1894. With the exception of hemoglobinuria, indisposition to move, and increased respiration, no ill-effects were noted. The animals still showed hemoglobinuria on the following day. These symptoms disappeared, and apparently the rabbits entirely recovered. On February 12, 1894, each received 1 per cent. of their body-weight of dog's serum intravenously. A control-animal also received 1 per cent. of its body-weight of the same serum. The two animals that had been previously inoculated died in two and twelve hours respectively; the control-animal showed only hemoglobinuria, which disappeared after a day or two.

The pathologic lesions produced in animals by these various poisonous substances have been very imperfectly studied up to the present time. The contributions that have been made to this subject refer almost exclusively to the gross changes in organs and tissues, or consider simply the effect that is produced upon the blood, especially the alterations in coagulability. Hellin, who studied, he says, one hundred organs or parts of organs obtained from animals dead of abrin-poisoning, could discover nothing abnormal, except thrombi composed of red blood-corpuscles. The whole pathologic process in these cases has been considered to depend upon an active gastro-enteritis, thrombosis of the vessels of the stomach and intestine, necrosis and ulceration from digestion. To this is to be added, for those cases in which death occurs rapidly with symptoms of convulsions, thrombosis of the cerebral vessels. Just as little attention has been given to the tissue-changes caused by the inoculation of animals with foreign serum. Heretofore it has sufficed to consider as the cause of death in the immediately fatal cases the coagulation of the blood, especially in the right heart and main pulmonary vessels, or the production of widespread capillary thrombosis. All experimenters have, however, encountered cases in which, as death has been delayed for several days, this explanation was insufficient, as thrombi were not demonstrable. Ponfick has shown that the kidneys suffer injury in secreting the hemoglobin liberated by the breaking up of the red blood-corpuscles, and he attributes many cases of death to the resulting nephritis and blocking of the kidney-tubules with methemoglobin casts.

It will be my especial purpose to point out the insuf-

[1] Journal of Physiology, 1887.

[2] Deutsche med. Wochenschrift, 1891.

ficiency of these views. A study of the pathologic changes in the organs has convinced me that the extent, and not the absence of tissue-alterations, is most remarkable.

At this time there are comparatively few that accept the bacterial origin of disease who will question the mode in which the organisms act, *i.e.*, whether it is the presence of the bacteria as such in the tissues, or the products of their vital activities, that is responsible for the harm that is done. Neither the mechanical influence, nor the effects of depriving the body of a certain quantity of oxygen and albumin, will longer suffice to explain their action. It is true that as living beings the bacteria require certain materials in order to build up their bodies and maintain their functions, and these they secure from the available stores of their surroundings, but it is just as certain that in the performance of their activities they produce excrementitious substances, which are in turn discharged into the host. It is to these substances, of which we have already spoken, that the attention of chemists and pathologists has of late been directed. And the study of their composition and properties has not only brought much light into this field of work, but has opened up new avenues of investigation, at the same time awakening new and unexpected hopes for the future of therapeutics.

It is now some three years since Professor Welch and myself[1] published a short communication on the lesions produced in the tissues by the soluble products of diphtheria-bacilli. This paper, following one describing the histologic lesions in kittens, guinea-pigs, and rabbits caused by the inoculation of the bacilli themselves, confirmed in all essential respects the first paper.

The study of the relation of the bacillus diphtheriæ to the disease diphtheria indicated that the constitutional symptoms of the disease, which, in human beings, are often of the gravest nature, were due to an absorbed poison, and not to the organisms themselves. The separation of the poison from cultures in a dry, but impure state, by Roux and Yersin, and the reproduction through its agency of the constitutional symptoms, including the paralysis, of the disease may be said to have been conclusive. Yet it remained to find in the animals experimented upon lesions similar to or identical with those described by Oertel in human beings.

I shall not here undertake to give an account in detail of these changes. They have since been seen and studied by a number of investigators, and constitute an additional link in the chain of evidence of the causal relation of the bacillus diphtheriæ to diphtheria in human beings. But I wish to state that these lesions are found extensively in the tissues. They are present in the lymphatic glands generally, in the spleen, liver, intestinal canal, kidney, and heart-muscle, and are characterized by a death of cells in the affected parts. Strangely enough, the peculiar changes are not equally distributed throughout the affected organs, as one would naturally infer when it is considered that we have to deal with a soluble substance circulating in the blood; but in the lymph-glands and viscera these lesions tend to occur in well-marked areas or foci.

This, then, has brought us face to face with a new problem in pathologic histology. Heretofore we were wont to separate the focal from the diffuse lesions. The latter class, such as commonly attend infections and intoxications, we have long since learned to know under the term given it by Virchow, of "parenchymatous degeneration," the "cloudy swelling" of the older writers. This is the type of lesion that was believed to result from the action of a soluble poisonous substance, in a certain concentration when the influence is continued for some time. The focal lesions, such as tubercle, a focal abscess, were regarded as the result of the lodgment and increase of the particular injurious agent in the areas affected.

Nor are we required to alter our views of the relation of the focal lesions in diphtheria to the soluble poison by the observation of Frosch,[1] since confirmed by several others, that in human beings a few diphtheria-bacilli are often found in the liver, the spleen, and other organs. The number of organisms is, in the first place, altogether insufficient to explain the lesions; there is, moreover, an entire absence of evidence of relation between the organisms and the tissue-changes, and, finally, there are cases in which no organism can be demonstrated, and, in animals, we now know that they are not necessary to the production of the focal lesions.

But I wish to present still more conclusive evidence of the relation between soluble poisons and focal lesions. For example, certain lesions ought long ago to have led to the suspicion that even soluble substances may act upon one part of the body and not upon another.

Consider, for instance, the action of snake-poison. What could be more impressive than the production of capillary focal extravasations of blood in the serous membranes in consequence of a subcutaneous inoculation of the poison? In this case the action of bacteria or other essentially "living agent" can, by the experiments of Mitchell, Reichert, Formad, and others, be entirely excluded.

I have made a series of experiments with poisons of another kind. From the published accounts of the action of ricin and abrin upon animals, little can be learned concerning the minute pathologic changes induced by these bodies. Manifestly these substances offer an opportunity to study the question of the relation of soluble poisons to focal lesions. In them we have, as I have already shown, substances that in many respects resemble the bacterial poisons; and according to Martin, the action of abrin is suggestive of snake-poison. They thus seemed to constitute ideal substances for study.

The first experiments which I made showed me that the picture of the pathologic changes given by Kobert, Hellin, Stillmark, and Ehrlich was very incomplete. In the main, subsequent work enabled me to confirm their results; but they have overlooked, it seems to me, the most striking and significant changes.

The samples of ricin and abrin which I employed in my experiments were made by Merck. The substances, which are supplied in the form of grayish-white amorphous powders, are insoluble in water, but dissolve readily and completely in a 10 per cent. salt-solution. After solution they can be diluted without change by addition of physiologic salt-solution or distilled water.

One of the impressive results in the use of these bodies

[1] Johns Hopkins Bulletin, 1891.

[1] Zeitschrift f. Hygiene u. Infektionskrankheiten, Band xiii, Heft 1, p. 49.

was the certainty of their action. After one has experimented with bacteria, the virulence of which is open to fluctuation, this constancy of action is a very striking characteristic. In this respect, again, we can see an analogy with snake-poison. Kobert has pointed out that 0.03 mg. per kilogram of ricin is fatal to rabbits and cats, and probably dogs, if injected into the veins, and Ehrlich has shown that guinea-pigs are so susceptible that one gram of the substance would suffice to kill not less than 1,500,000 of these animals.

My experiments have been completed only so far as to enable me to report upon the effects produced upon mice, guinea-pigs, and rabbits. I have had among these animals very acute and chronic cases. The acute cases present such a characteristic clinical and pathologic picture as to be unmistakable.

The lesions about to be described could be produced almost with the certainty of a chemic reaction.

I shall not give the detailed protocols of the cases, but will content myself with a description of the pathologic changes in general, and shall, in the first place, summarize a few typical cases.

The intra-venous inoculation of ricin dissolved in 10 per cent. salt-solution in the proportion of 0.3 mg. to 3 mg. per kilogram of weight kills rabbits in from eighteen to twenty-six hours. In the cases of most rapid death, the axillary, inguinal, bronchial, and cervical lymphatic glands are found slightly swollen and softened. The peritoneal cavity may or may not contain an excess of clear fluid; the mesenteric glands at the attachment of the mesentery are also swollen and edematous. The intestines, especially the small intestine, are distended and pale, their contents being soft, glutinous, and grayish-white in color, and resembling in appearance cholera-stools. The patches of Peyer, in both the small and the large intestine, are elevated, swollen, and pale. They present a reticulated aspect in consequence of the greater swelling of the lymphatic follicles than of the intervening mucous membrane. The heart is filled with blood, the right ventricle being especially distended. The blood is fluid; or soft, dark clots may appear. Neither the kidneys nor the lungs show especial alteration. The spleen is slightly swollen and softened, the liver large, soft, and yellow in color.

The animals that receive a smaller dose and live longer, say from twenty to twenty-six hours, show more pronounced lesions. All the superficial lymphatic glands are greatly swollen and dark in color. The spleen is often much enlarged, tense, and deep purplish-red in color. The kidneys are congested; sometimes the adrenals also. The mesenteric glands are much swollen, edematous and hemorrhagic. The peritoneal cavity often contains bloody fluid, and there are many subserous hemorrhages into the peritoneal layer of the intestines and mesentery. In some cases there are so many hemorrhages into the omentum that the picture presented reminds one of snake-poisoning. The intestines are distended with semi-fluid, glutinous contents, which often show streaks of blood. The mucous membrane of the intestines is congested, and here and there small hemorrhages are observed; the latter correspond at times with dilated bloodvessels in the serosa filled with dark, clotted blood. Peyer's patches present the most striking lesions, and are uniformly swollen and congested. The swelling is apparent at once through the serosa upon opening the peritoneal cavity and examining the intestines, and the glands often reach such a size that they project into the lumen of the intestine for a distance of two millimeters. At times small points of hemorrhage occur in and around the swollen patches, which always present a reticulated surface. In the stomach ulcers are sometimes found. The liver is dark in color, often much congested, and presents to the naked eye foci of yellowish or yellowish-white color, which at times are surrounded by hemorrhagic zones. A few of the inoculated animals were pregnant, and in these there were without exception hemorrhages into the fetal sacs.

The microscopic changes are well marked. In the lymph-glands hemorrhages are commonly present, and the vessels are greatly dilated and packed with red blood-corpuscles. Many of the lymphatic elements are necrotic; cells with fragmented nuclei are common, and this fragmentation is often extensive. Intermingled with the foci of fragmentation are numerous karyokinetic figures. The lymphatic apparatus of the intestines shows in an analogous manner the destructive influence of the poison, but in this situation the cell-death is much more extensive, and the swelling of the follicles is clearly due in part to an increase in number of lymphoid elements. Nuclear figures are found in considerable numbers. In the intestines the destructive process is not limited to the lymphatic elements in the follicles, but those in the villi suffer extensively, and the epithelial elements are as little spared. Fragmentation and necrosis with rapid cell-multiplication by karyokinesis are present here also. The spleen shows changes similar to the lymph-glands, and these are localized in part in the Malpighian bodies.

The liver presents in many respects the most interesting changes, and a variety of forms of cell-death are met with in this organ. In the capillaries of the liver, which are greatly dilated, the endothelial cells are sometimes fragmented and necrotic, and the leukocytes suffer a similar change. But in the liver-cells themselves the process reaches its height. The yellowish and yellow-white areas visible to the naked eye correspond to foci of coagulation-necrosis of liver-cells. The liver-cells in these areas are still preserved in some instances, but they are hyaline in appearance and devoid of nuclei. At times the nuclei can still be made out in the form of fragments. In other foci the cells are much altered in appearance and staining properties, and the nuclei have undergone another form of necrosis. They have not fragmented, but have died as a whole, becoming paler and paler until they finally fail to stain, with apparently a synchronous alteration in the cell-protoplasm. Still other cells have given up most of their protoplasmic material and appear as almost empty vesicles, with here and there a trace of protoplasm. Again, a group of cells will be converted into a reticulated substance suggesting fibrin; and, indeed, these foci of necrotic cells often give a reaction with Weigert's fibrin-stain, while the remainder of the tissue does not retain the dye.

These foci of necrosis are often surrounded by large quantities of nuclear detritus—to such an extent, indeed, as to exclude the possibility of its having been derived altogether from the tissue-nuclei. Some of the detritus must have come from emigrated cells, attracted, as we now know commonly happens, to these necrotic foci,

where they suffer the same fate as the tissue-elements. An interesting feature was noticed in connection with the lymphatics in the interlobular spaces of the liver. They were at times choked with nuclear detritus. Manifestly such an amount of nuclear material could not come from the cells lining the lymphatics, nor from the cells of the lymph. There is only one interpretation possible of this appearance: it represents the nuclear detritus of the tissues and emigrated cells which had been swept by the lymph-vessels into the current. To accomplish this it is probable that an increased lymph-current is necessary.

That in the short space of time—about twenty-four hours—rapid cell-proliferation occurs in the lymph-glands we have adequate evidence, and we also have reason to believe that the same thing occurs in the liver. Around a focus of necrosis, about 1 mm. in diameter, in the periphery of which the capillaries were greatly dilated and literally choked with nuelear fragments, there were evidences of cellular proliferation in the rapid multiplication of the liver-cells, forming at times actual giant-cells.

The studies of Podwyssozki[1] have shown that in rabbits, after injury to the liver, cell-division by karyokinesis has already begun on the second day, and by that time the various stages of nuclear division are present. He also observed on one occasion liver-cells with colossal dividing nuclei, in which no indication of division of the cell-bodies could be made out; from these he believed that giant-cells were formed.

That the liver of rabbits under certain circumstances possesses marked capacity for regeneration has been shown by the experiments of Ponfick, who, after removing large portions of the organ, found that compensatory hypertrophy of the remaining parts took place.

In this description I have had nothing to say of the alterations of the blood described by Kobert. The thrombi of red blood-corpuscles which he found were also met with in my specimens. But they cannot, I think, be regarded as playing an essential part in the production of the lesions.

When we attempt to explain the phenomena that we have just described, great difficulties are at once encountered. There are, as will be readily admitted, several questions of no small interest involved. For example, what determines the localization of the activity of the poisonous agent to such a large extent upon certain structures? Why do the lymphatic elements everywhere suffer so disproportionately? Are there in the body special tissues whose function it is to destroy, render innocuous or eliminate the injurious substances? And as regards the lesions in the intestinal tract, is it not a matter of indifference whether we introduce the poisonous agent into the blood, by the stomach, or subcutaneously?

Moreover how are we to account for the selection (for such it seems to be) of certain groups of cells on which the greatest stress of the poison is exerted? Shall we be obliged to fall back upon an hypothesis with which we are familiar enough in form, but as far as ever from understanding? I refer to the assumption of a difference of resistance of certain cell-groups of an organ, in consequence of which they fall an easy prey to the poisons which other cells can resist. Or, again, do the areas of necrosis, as has also been suggested, represent foci of especial enzyme-activity, points at which the poison increases, with the result finally of causing the death of the animal, and the lesion described?

These are fundamental questions and doubtless not all to be answered at the present time. But we have certain facts in our possession, derived from experiments, which may aid us in the solution of some of these problems.

Koeppe,[1] working in Ludwig's laboratory, and proceeding on the basis that the lymph flowing into a lymph-gland is poorer in cells than the outflowing lymph, supposed that if the lymph-entrance and lymph-exit were both closed an increase in the size of the gland would take place. He accordingly ligated the afferent and efferent lymph-vessels of one of the cervical lymphatic glands of the dog, and examined the gland, comparing it with its fellow of the other side. To his entire amazement, he found that after two weeks the gland operated upon was much smaller than its fellow, and showed upon microscopic examination fewer mitotic figures. The interpretation of this experiment seems clear: the lymph is the normal excitant of the lymph-gland, and upon its presence depends the production of lymph-corpuscles within the gland. This conclusion is made the more probable by the further observations of Koeppe, that the arterial blood supplied to the gland, so far from being an aid, is a hindrance to the multiplication of the lymph-corpuscles.

From his experiments on lymph-formation, Heidenhain believed that he had proved that the separation of lymph from the blood does not depend upon a process of filtration, but is to be regarded as due to a secretory activity of the cells lining the capillaries. According to him a number of substances are capable of so acting on the capillary walls in the dog as to cause an elimination of an increased quantity of lymph, amounting often to several times the usual amount as measured by the outflow from the thoracic duct. Among the most active agents are the enzymes, derived from the salivary, pancreatic, and gastric secretions. Although Heidenhain[2] considered that his experiments proved that the increased lymph-flow is quite independent of the blood-pressure, yet Starling[3] has just shown that in a number of his experiments there was an increased capillary pressure in the liver, whence a large part of the lymph was derived, and it will be recalled that in the liver in our experimental animals the capillaries are much dilated, often compressing the rows of liver-cells.

These facts are, I think, very suggestive. On the one hand we have learned that the lymph is an excitant of the lymphatic glands, and on its presence depends the formation of lymphoid cells, and, on the other hand, it has been demonstrated that certain ferments may act as the cause of an increased lymph-flow. It is pertinent, I think, since the histologic evidence that an increased

[1] Ziegler's Beiträge, vol. i.

[1] His u. Braune's Archiv, 1891.

[2] Pflüger's Archiv, Band xlix. See also Hamburger Zeitschrift für Biologie, Band xxx, p. 143.

[3] Starling: Arris and Gale Lectures on the Physiology of Lymph-formation, Lancet, 1894. 3683 et seq.

flow was actually induced by these enzyme-like bodies is before us, to inquire whether or not the rapid increase in the lymphatic elements can in part be attributed to this cause.

The variations in the circulation of the blood in the organs must be considered as bearing on the production of such focally distributed lesions as are here described. That the circulation is not equal in all parts of an organ at all times is indicated by observations upon living animals, and the capillary circulation especially is subject to wide variation.

I would ask a consideration of the effect this difference may have in bringing about such focal effects as we have encountered in the liver. We have seen that the action of the poisonous agent is exerted in part upon the capillary walls. The necrosis, fragmentation and regeneration of endothelium indicate this. I would also point out that the injury to the capillary wall is nowhere so great as in the areas in which the necrosis is found. This fact suggests the possibility that, in certain capillaries in which the circulation was much diminished in rapidity or was temporarily at a standstill at the time when the irritant acted with the greatest intensity, such damage was done the capillary wall that a freer transudation took place into the tissues than elsewhere, resulting in the destruction of cell-groups; and Cohnheim[1] has shown that the lymph will be more concentrated the greater the permeability of the vessel-wall.

I have already alluded to the fact that in such areas there is an abnormal accumulation of leukocytes. The general blood contains an increased number of these cells, but there are relatively many more in the areas of necrosis.

We now know, thanks to the researches of Stahl,[2] Pfeffer,[3] Leber,[4] Buchner,[5] and others,[6] that certain stimuli of a chemic nature attract and repel these as well as other cells. In undergoing necrosis, certain chemic changes take place in the tissues, through which the leukocytes are attracted to them, but some bacterial products are still more positively chemotactic than are those substances derived from cells. In order that this attraction shall be exerted, Pfeffer discovered for the sperm-threads of ferns that the attracting substance could not be equally diffused throughout the fluid, but must exist in a greater concentration in one part than in others. There is then an immediate movement toward the areas of concentration. It seems plausible at least that the poison which is conceived to be in greater concentration in the areas of necrosis exerts a positively attractive influence upon the leukocytes. To test this point the following experiment was made.

Capillary tubes were filled with a solution of ricin in normal salt-solution of varying strength, 1 to 100,000, 1 to 200,000, 1 to 500,000, 1 to 1,000,000, and introduced beneath the skin of rabbits. Control-tubes of sterilized physiologic salt-solution were also introduced. After twenty hours the ricin-solution of 1 to 100,000 proved to be strongly chemotactic, the open end of the tube being plugged by a thrombus of leukocytes, fibrin, and granular material. The weaker solutions exhibited positive chemotactic properties directly in proportion to the concentration. Only a few leukocytes were found in the tubes containing simple salt-solution.

There remains one other class of ricin-cases, those of chronic character. These are more difficult to obtain, and very small doses must therefore be employed. I give a typical case.

On November 9th, a guinea-pig, weighing 600 grams, received 1.5 c.c. of a 1 to 200,000 solution of ricin, subcutaneously. There was considerable local reaction; a hard node appeared over the site of injection, which, however, gradually disappeared. The animal lost weight for several days, but ten days subsequently to the inoculation had about regained the loss. On December 11th, seeming to have recovered, it was allowed to run about freely, and was often noticed to eat voraciously. Notwithstanding this fact, it grew more and more emaciated until December 29th, when its death occurred. At this time its weight was 270 grams.

At the autopsy the emaciation was extreme. The lymphatic glands were not enlarged; the spleen was small and dark, the liver dark. The intestines contained semi-fluid, mucus-like and turbid contents, and the mucous membrane was much attenuated. Cultures made from the organs were entirely negative.

This picture is strikingly different from that observed in the other class of cases, and presents the features of a profound disturbance of nutrition. The microscopic examination of the tissues showed by the amount of iron-containing pigment in the spleen and liver that great hemolysis had taken place. But of especial interest is the occurrence of atrophic patches in the kidneys.

Up to the present time we have considered the histologic lesions that are produced by the vegetable toxic proteids. I would now ask attention to those caused by toxic agents of animal origin.

Thus far my studies have been confined to the action of the blood-serum of man and dogs upon rabbits. We know from the experience of Landois,[1] Ponfick,[2] Daremberg,[3] Buchner,[4] Carter,[5] and others, that the immediate effect of the injection of serum is the destruc- of the red and colorless blood-corpuscles. The animals, as often happens, may succumb immediately, in consequence of thrombosis of the right side of the heart and pulmonary artery, the respiratory function ceasing before the heart's action. Not uncommonly the animals experience less severe effects, and after a variable period of depression, increased frequency of respiration, weakness and hemoglobinuria, apparently recover.

I have found dog's serum strongly globulicidal for rabbits. This statement is based upon the common occurrence of hemoglobinuria that lasted from one to two days, as well as upon actual counts of the number

[1] Allgemeine Pathologie, 1882.

[2] Stahl: Botanische Zeitung, 1884.

[3] W. Pfeffer: Untersuch. a. d. botan. Institut zu Tübingen, Bd. I and II.

[4] Leber: Fortschritte der Medicin, 1888; Die Enstehung der Entzündung, etc., Leipzig, 1891.

[5] Buchner: Berliner klin. Wochenschrift, 1890.

[6] J. Massart and Bordet: Journal de la Soc. R. des Sciences Médicales et Naturelles de Bruxelles, 1890. Steinhaus: Die Aetiologie der acuten Eiterungen, Leipzig, 1889. O. Hertwig: Ueber die physiologische Grundlage der Tuberculin-wirkung, Jena, 1891.

[1] Landois: Med. Centralblatt, 1874, p. 419.

[2] Ponfick: Berl. klin. Wochenschrift, 1874, No. 28. Ponfick u. Bamberg: Arch. f. path. Anat., Bd. lxii, p. 273.

[3] Daremberg: Soc. de Biologie, 1891, p 710.

[4] Buchner: Münchener med. Wochenschrift, 1892, p. 120.

[5] Carter: University Med. Magazine, 1893, p. 170.

of red blood-corpuscles. Doses of 1.5 per cent. of the body-weight were usually fatal to rabbits. In these cases death occurred either immediately or after ten or twelve hours. Quantities of one per cent. of the body-weight caused profound disturbances, including hemoglobinuria and albuminuria, and less commonly anuria, and in a few instances immediate death. Some of these animals survived several days or weeks, and some even appeared to recover. They were, however, as we have seen, more susceptible to subsequent inoculations.

When death follows at once upon, or soon after the inoculations, it is usual to find thrombi in the right side of the heart, which may extend into the pulmonary artery and its main branches. The rapid breaking up of the corpuscles liberates the fibrin-ferment, with consecutive coagulation of the blood in the vessels. The experiments of Naunyn[1] have shown that the red corpuscles yield the necessary ferment, and those of Schmidt and others that the white corpuscles, which are likewise destroyed by the foreign serum, are especially rich in this substance.

There are cases, however, in which great destruction of corpuscles has occurred, but in which coagulation has not ensued, and, indeed, under these circumstances the coagulability of the blood is diminished. We owe to the researches of Pekelharing,[2] Wooldridge,[3] Löwit,[4] Schmidt,[5] and others[6] a partial understanding of this difference. It will not be possible for me to enter into the details of this matter here; it will suffice to state that much will depend upon the capacity of the organism to dispose of the liberated fibrin-factors and upon their behavior with regard to the calcium-salts of the plasma.

The cases already alluded to, in which the death of the animal is delayed for a time, are of especial interest, as they show certain well-marked lesions. While the observations that I have made are more complete as regards the action of the serum of the dog upon rabbits, the serum derived from human beings apparently acts in much the same way. Permit me to say that these lesions resemble, but are not identical with, those described in connection with the toxalbumins of diphtheria, ricin, and abrin.

The tissues of animals dead of serum-poisoning which I have so far studied consist of the spleen, liver, kidneys, and lymph-glands. In the acute cases the spleen shows a tolerably rich fragmentation of nuclei situated especially in the Malpighian bodies; the liver contains foci of necrosis of liver-cells, and the renal epithelium is degenerated and many methemoglobin-casts block the kidney-tubules.

Of especial interest is an animal that died on the thirteenth day in which very extensive lesions were found:

A rabbit received on December 25, 1893, 1 per cent. of dog's serum, twenty-four hours old, intra-venously, and was dead in twenty minutes after completion of the inoculation. A second rabbit weighing 1200 grams received ½ of 1 per cent. of serum from the same source. There were no immediate perceptible effects. After the lapse of thirty minutes the expressed urine contained hemoglobin-casts. For some days following the inoculation the animal appeared to be in perfect health, but about the seventh day it began to lose in weight, grew perceptibly weaker from day to day, and died on January 6, 1894.

The autopsy showed great emaciation. The peritoneum contained an excess of fluid; the axillary lymph-glands were enlarged; the intestinal lymphatic apparatus was apparently normal. The liver, which was firm in consistence, was roughened externally and dark in color. The kidneys appeared small; their capsules were not adherent, but their surface was granular. In the spleen, which was enlarged, were a number of white wedge-shaped areas, the bases at the capsule, and quite firm in consistence. Attached to the chordæ tendineæ of the tricuspid valve was a calcified thrombus as large as a split-pea. The urine contained albumin and tube-casts.

The microscopic changes were those of chronic interstitial processes in the liver and kidney. In the latter the tubules were in places atrophied and surrounded by a new growth of connective tissue; in other places the tubules were dilated and the epithelium lining then degenerated; but it was in the liver that the pathologic alterations could best be studied. The chronic changes were well-marked here also, and were such an accurate reproduction of cirrhosis in human beings that a separate description seems superfluous. Areas of newly formed and forming connective tissue, proceeding from the portal spaces and also from the capsule, were irregularly distributed throughout the organ; newly formed bile-ducts were numerous; but what was of especial moment was the association with this of another process, viz., acute degenerative changes in the liver-substance, which were often distinctly the starting-places of the sclerotic process.

In rabbits that died at a somewhat earlier period, after five or six days, I have not infrequently found coagulation-necrosis of liver-cells. To these areas leukocytes are not attracted in such numbers as in cases of diphtheria or poisoning with abrin or ricin; and in keeping with this difference I have found that capillary tubes containing dog's serum, when introduced beneath the skin of rabbits and removed after twenty-six hours, showed very slight positive chemotaxis only.

It is possible in the chronic cases to follow the progress of the pathologic process. The degenerative changes and the new growth of connective tissue can be studied side by side. There is necrosis and disintegration of liver-cells, emigration of leukocytes and growth of connective tissue. The new tissue comes both from the surface-capsule and from the inter-lobular connective tissue, but not exclusively from these. Independent new-formations in the midst of the lobule occur, just as there are independent foci of necrosis in this situation. Here and there, where the connective tissue is advancing, the fast disappearing remains of necrotic cells can be seen; but where the sclerotic tissue is already well developed and new bile-ducts are well formed, this is not always possible. Finally, in the spleen, the white nodules resembling infarcts are masses of fibrous tissue.

The changes found in the organs in cases of serum-

[1] Archiv für exp. Pathologie, Bd. i.

[2] Pekelharing: Festschrift f. Virchow, 1891, Untersuchungen über das Fibrin-ferment, Amsterdam, 1892; Ueber die Gerinnung des Blutes, Deutsche med Wochenschrift, 1892.

[3] Wooldridge: Die Gerinnung des Blutes. Leipzig, 1891.

[4] Löwit: Studien zur Physiologie und Pathologie des Blutes und der Lymph. Jena, 1892.

[5] A. Schmidt: Zur Blutlehre, Leipzig, 1892.

[6] Artur et Pagès, Arch. de physiol. ii, 1890. Lilienfeld, Du Bois-Reymond's Archiv, 1892, pp. 115, 167, and 500.

poisoning are, if I mistake not, of no slight importance. They indicate that it is necessary to enlarge our views of the damage that serum is capable of doing, a damage not limited to the corpuscular elements of the blood, for the tissue-cells are not indifferent to its action.

In the end the differences in the action upon the blood and tissues of the toxic agents discussed are not so great as their correspondences—a fact that emphasizes their chemic similarity. These substances so affect the tissue-elements as to cause degeneration and death, and their effects are followed by reparative processes that do not restore the integrity of the tissues. The relation that Weigert[1] several years ago maintained between parenchymatous degeneration and interstitial tissue-proliferation in the kidney, and which Ackermann[2] urged for the liver in chronic phosphorus-poisoning in rabbits, I have been able to follow in the cases mentioned in both organs, although most satisfactory in the liver.

Moreover, the chronic lesions, such as we have just studied, seem to be open to us for experimental study. Heretofore we have had to content ourselves with the production of degenerative changes, and have been excluded from imitating by experiments on lower animals the chronic proliferative processes in the internal organs of man.

In conclusion, the study of the tissue-changes that I have had the privilege of bringing before you has brought us from the consideration of acute degenerative changes of a focal character due to soluble poisons to the realization of the probability of their playing an important part in the production of chronic interstitial changes in animals, which find in cirrhosis of the liver and chronic nephritis analogies in human beings.

CLINICAL MEMORANDA.

CEREBRAL PALSY OF CHILDHOOD FOLLOWING DIPHTHERIA.[3]

By CASPAR W. SHARPLES, M.D.,
of Seattle, Wash.

Comparatively recently a group of cases has been recognized as the cerebral palsies of childhood, having definite relations one to another and separate from ordinary infantile palsy. The condition often makes its appearance as a sequel of some acute infectious disease, such as scarlet fever, measles, etc. Most of the cases offered for study are those of months' or years' duration, and when seen they present as the one characteristic a spastic state of the muscles of the affected side, associated, if of long standing, with a decrease in the size and length of the limbs. Many present various evidences of cerebral disturbance, as epilepsy, idiocy, etc. The occurrence of cases of this class of hemiplegia after diphtheria is rare. Among one hundred and sixty cases of spastic hemiplegia tabulated by Wallenberg only three cases followed diphtheria or croup; nine followed measles; thirteen, scarlet fever; and six, epidemic cerebro-spinal meningitis. Of Osler's one hundred and twenty cases none was reported to be due to diphtheria; and if I recall correctly none of the cases tabulated by Dr. Sarah McNutt, in her paper on "Spastic Hemiplegia," followed diphtheria.

To say just what has taken place in the brain in these cases is difficult, for autopsies in cases of recent date are rare, because most of them survive the immediate dangers of the primary condition, and new processes obliterate to some extent the original state of affairs. Sclerosis, then, is the most common condition found, with porencephalon, simple cysts, and softening as rarer conditions.

A recent German journal contained the report of a case very much like the present one. About six days after the diphtheric membrane had disappeared the boy suddenly became comatose; on emanating from this condition he was found completely paralyzed on his right side, and was also aphasic. After the lapse of five months the aphasia had to a great degree disappeared and motion was returning in the arm and leg, although he still presented the hemiplegic gait. This is the only case of the kind of which I have seen any record.

I venture to report this case on account of the infrequent occurrence of similar ones. I am indebted to Dr. L. R. Dawson for the privilege of seeing the case and reporting it.

J. C., a boy, thirteen years old, had an attack of diphtheria a short time after his father recovered from an attack of erysipelas of the face following a scratch from a fall. Before the membrane had disappeared, and although he was apparently doing nicely, his heart began to be irregular and rapid. About midnight, December 4, 1893, he was suddenly paralyzed upon the entire right side. Coma was not deep or long, for in a half-hour the boy realized what was going on around him. No convulsions accompanied the onset. Preceding the attack, during the evening, the child frequently cried out, making a peculiar sort of noise. This was continued during the day and especially if he was disturbed in any way.

I first saw the patient twenty-four hours after the onset of the trouble. His mental state was improving. The right side of the body was the seat of tremors that shook the entire body. These would last off and on for a half-hour and would recur at irregular intervals during the day. The skin was hypersensitive. Touching the leg would cause the boy to cry out as if in pain. The arm did not present these phenomena to the same extent as did the leg. The tendon-reflexes at the time were absent.

Speech was wanting, although the child appeared to understand what was said to him, and was able to make his displeasure known. His heart was behaving very poorly; its action was tumultuous, irregular, and weak, so that death would not have been a surprise at any time, and it so continued for three or four days, gradually coming down to normal. No heart-murmur was detected. The urinary secretion was scant and passed infrequently. The bowels only moved after the administration of drugs or if injections were used.

This report is made four months after the onset. There has gradually been a return of the power of speech and of motion. Motion began to return in about five weeks, when the boy made an effort to walk with assistance, and now he gets along by himself very nicely, with the ordinary hemiplegic gait. For a time, to obtain any motion in the right hand and arm, he had to use the left

[1] Volkmann's Sammlung klin. Vorträge, 1879, Nos. 162, 163.

[2] Virchow's Archiv, 1889, Bd. 115.

[3] Read at the annual meeting of the State Medical Society of Washington, May 2 and 3, 1894.

to the same purpose, when the right would coördinate; yet the use of the left arm did not always excite motion in the right. Two weeks ago when he attempted to squeeze my hand, he made a very strong left-handed contraction and a scarcely perceptible right-handed one. To-day he could raise his arm a short distance from his body, and could extend the little and ring fingers so that they were nearly straight.

Athetosis has not been present, though at times while moving the left arm the fingers of the right would assume a position approaching athetosis. This now has disappeared.

As is common in ordinary hemiplegia and as is characteristic of hemiplegia in children, the tendon-reflexes have been increased. They are more marked in the leg than in the arm. Ankle-clonus could not be elicited. The skin-reflexes are still exaggerated. Electric examination does not show any reaction of degeneration. In both the arm and the leg the galvanic current causes a contraction of the limb—acting, I would say, through the skin, and producing an exaggerated skin-reflex.

The size of the limb has decreased, as shown by the following measurements: The right calf measures 10.6 inches; the left calf 10.9 inches; the right thigh 13.1 inches; the left thigh 13.5 inches; the right forearm 6.5 inches; the left forearm 7 inches; the right biceps 7 inches; the left biceps 7.5 inches.

The aphasic condition has improved and no doubt will continue to improve until the boy can talk fairly well. At first he could not say a word. After commencing to talk he would use the wrong word. "Yes" was the first thing he could say. After naming an object incorrectly, he would recognize his mistake, but could not correct it, and often could not repeat what he was told. He now occasionally joins a couple of words coherently. To-day he said "Papa—Sharples," meaning that his father had brought him to the office. Occasionally he says something "hurts there."

So far there has been no mental deterioration, unless it be that the boy is more irritable than he was. He adds, multiplies, etc., as well as ever.

For a month the galvanic current has been applied, and within this period he has made more rapid improvement than at any previous time; yet I would not attribute too much to electricity.

There are two other points of interest in the family. His mother had paralysis of the palate, so that deglutition was uncertain and speech poor. The sister, a couple of years older than the boy, who was the last of the family afflicted, and had had her feelings much worked upon by her brother's paralysis, had two hysterical seizures in which right hemiplegia was quite well simulated.

It is a matter of common occurrence to find palsies of different types or locations after an attack of diphtheria. These palsies depend on certain local conditions, the most common being a neuritis involving individual nerves, though separate nerves situated in different parts of the body may be affected at the same time.

The motor nerves show more profound changes than the sensory ones. Yet we are too liable in looking at a case of post-diphtheric palsy to consider it a peripheral neuritis and to look no deeper.

In any lesion of the peripheral portion of a nerve, degenerative changes travel up as well as down, and if they enter the cord they do so by means of the posterior roots. In a few cases of post-diphtheric palsy the degenerative changes have been found in the anterior roots, indicating beyond a doubt that the lesion has destroyed some of the cells of the gray matter of the cord. One observer has found in the substance of the cord colonies of the same germs as exist in the membrane of diphtheria, and the nerve-sheaths have also been found infiltrated with the same germs. In one case in which the latter condition existed, the brain contained a number of infarcts.

These facts have been mentioned to show that if diphtheria can be productive of such conditions in the nerves, and more especially in the cord, it would be only reasonable to attribute a similar causative relation to diphtheria followed by cerebral lesions. Yet it may be justly said that if this were the fact cerebral lesions would be more common after diphtheria than they are. It may be true that diphtheria did not have any more relation to this condition in the case here reported than any other septic or infectious process would have had; and the reason for this would appear the stronger when it is considered that the essentially diphtheric palsies are peripheral and due to an inflammation of the nerves.

As to the question of diagnosis, there is no doubt now, nor was there at any time a reasonable one. The case differed from common infantile palsy in the manner of onset, being sudden and immediately complete, while the other develops gradually and progressively. The time of occurrence, in relation to the attack of diphtheria, was as would be expected for both conditions. The loss of consciousness was complete for only a short time, while if there had been an extensive hemorrhage into the brain-substance, this loss would have lasted longer. It was such as comes on from cerebral embolism. Some observer has stated that these cases of hemiplegia may be caused by colonies of germs plugging a vessel. Aphasia indicated the central origin of the lesion, yet if there had been a neuritis of the inferior laryngeal nerves alone, there would have been aphonia. The subsequent state of ataxic aphasia offsets the possibility of any local condition.

All reflexes were gone at first on the affected side, but have returned. For diagnostic purposes at the time of onset they were of no aid. In diphtheric palsy they only return. In our case they have returned and have also become exaggerated. This change indicates the central origin. The tremor and involuntary movements of the right side indicated that some central irritation was taking place.

In one case in which an autopsy was made soon after the hemiplegia, a very small hemorrhage was found. Porencephalon is attributed to plugging of a cerebral vessel, and as so many cases of cerebral palsy of childhood show porencephalon, the embolic origin of these cases must be quite frequent.

One more point I want to mention, and that is that erysipelas occurred in the house just preceding these cases of diphtheria. The same causes evidently act to produce these two conditions, as they are often found associated in the same houses.

Note.—This boy has materially improved in speech and motion, and the size of his limbs has also increased.

A CASE OF ELECTRIC SHOCK OF ONE THOUSAND VOLTS; INSENSIBILITY OF PATIENT TO PAIN; RECOVERY.

BY P. S. DONNELLAN, M.D., L.R.C.S.,
OF PHILADELPHIA;
VISITING PHYSICIAN TO ST. MARY'S HOSPITAL.

I AM indebted to the courtesy of my colleague, Dr. W. M. L. Coplin, for the privilege of reporting the following case.

On the 20th of April, 1894, J. R., aged forty-four years, while engaged in repairing broken wires for the Bell Telephone Company, grasped the ends of a wire that had crossed an electric light wire, conveying one thousand volts. He received the full force of the current through his body, and was immediately rendered unconscious. He was thrown violently to the ground, and could not be released until the current was broken by a fellow-lineman, who cut the wires apart with a hatchet.

The man was brought to St. Mary's Hospital at 11 A.M., within half an hour of the accident, and I saw him a few minutes after his admission. He was in profound coma, with pupils widely dilated and irresponsive to light, breathing stertorous, face pale and bathed in perspiration. About ten minutes later he vomited, and then became wildly delirious, so that it required the combined efforts of three men to keep him in bed. He moaned and cried incoherently, and tonic and clonic convulsions of a severe type succeeded each other with great rapidity. At this time we were unable to take his temperature on account of his extreme restlessness, but to the hand it appeared about normal. His respirations now lost their stertorous character, and became more of the Cheyne-Stokes variety, averaging about ten per minute for two hours after his admission. The pulse was 80 per minute, of high tension.

At 11.40 A.M. the man was given morphin, gr. $\frac{1}{4}$, by hypodermatic injection; and as the delirium and convulsions did not abate, the injection was repeated at 12.10, and soon afterward he gradually quieted down. About 1.30 P.M., as his respirations were alarmingly feeble, he was given strychnin, gr. $\frac{1}{30}$, by hypodermatic injection with excellent effect. At 2 P.M. he fell into an apparently normal sleep, from which he awoke four hours later, conscious, but slightly dazed, and feeling, as he expressed it, "tired and sore all over." On my visit to the hospital next morning I found that he had slept well during the night; his temperature was 98.8°, his pulse 72, his respiration 18. He complained of pain from a number of severe burns that he received during his contact with the wire. These burns were distributed irregularly in lines over the back, arms and legs, and evidently were caused by the intensity of the current, as the clothing which covered the affected areas showed no signs of having been scorched.

On questioning the patient as to the nature of the accident, he remembered perfectly all of the incidents of his morning's work up to the time when he grasped the wire that conveyed the shock through his body. After that moment he had not the slightest knowledge of what had occurred, and did not suffer the least pain until he awoke at 6 P. M., as already stated, to find himself in bed in the hospital.

The subsequent history of the case was uneventful. The patient made an excellent recovery.

In view of the employment of electricity by the authorities of certain States for the purpose of putting condemned criminals to death, the facts of the case related are of interest. Dr. J. W. Brown[1] has published the history of an electrocution that took place at the prison at Auburn, N. Y., in which the condemned man received a voltage of 1260 through his body for fifty-six seconds, and, being apparently dead, he was released from the straps. To the horror of those present, he gasped for breath and began to revive. He was placed again in the chair, but the current would not work, so that he was removed to the hospital, and developed a train of symptoms precisely similar to those observed in the case that I have reported. A second contact an hour and fifteen minutes later resulted in death in forty seconds. The case attracted great attention at the time, from the supposed agony of the condemned man, who was regarded by the newspapers as a hero on account of his sufferings. According to the statement of our patient, he was absolutely insensible to pain from the instant he received the shock: even the actual discharge of the current caused him no suffering; and were it not for the burning of his skin, he would not have been aware that he had met with an accident.

While it is to be regretted that the public is greatly exposed to accident from contact with currents of high tension on account of the almost universal employment of electricity as a motive and lighting power in our large cities, it seems to me that, so long as capital punishment has to be enforced as a legal penalty, the electric current, properly applied and of sufficiently high tension, is the most humane agent yet devised for putting condemned criminals to death.

1122 WALNUT STREET.

THERAPEUTIC NOTES.

For Bronchorrhea.—

R.—Copaibæ	. . . . .	ʒiij.
Tinct. chloroform. comp.	. .	♏xx.
Mucilag. acaciæ	. . . .	f ʒvij.
Liq. potassæ	. . . .	f ʒj.
Aquæ cinnamomi	. . . ad	f ʒviij—M.

S.—Two tablespoonfuls three times daily.

Practitioner.

To Control the Vomiting of Chloroform-narcosis WARHOLM (*Hygeia*, 1839; *Memorabilien*, xxxviii, 3, 171) recommends the inhalation of vinegar-vapor, upon the basis of a considerable personal experience. A towel or napkin is wetted with vinegar and held before the nostrils of the patient after the narcosis. The inhalation may be permitted *ad libitum*.

Modified Blaud's Pill.—

R.—Potassii carbonat.	. . .	gr. $1\frac{1}{2}$.
Potassii sulphat.	. . . .	gr. ij.
Massæ ferri carbonat.	. . .	gr. iij.—M.

Ft. pil. no. j.

ENGLAND, *Amer. Journ. Pharm.*, vol lxvi, No. 7.

[1] Medical Record, New York, 1893, vol. xliv, p. 222.

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SATURDAY, AUGUST 4, 1894.

THE CAUSE OF THE FEVER IN THE INFECTIOUS DISEASES.

ATTENTION has more than once been recently directed to the laboratory of PROFESSOR TIZZONI, of Bologna, through the reports of the careful chemic and physiologic researches that have issued from it. One of the latest and most important of these deals with the origin of the fever present in the infectious diseases. The article is by CENTANNI,[1] and the conclusions at which he arrives cannot, when they have become generally known, fail to excite wide interest and to stimulate further investigation in neighboring fields.

CENTANNI'S results, briefly stated, are these: The febrile phenomena occurring in the course of bacterial infection are the consequence of a general intoxication of the patient with a poison, to which he gives the name *pyrotoxina bacterica*. This substance is formed within the bodies of the bacteria themselves, and is entirely distinct from such bacterial poisons as the ptomaïns, enzymes, and toxalbumins. The pyrogenic substance is present in approximately constant amounts in all bacteria, both pathogenic and non-pathogenic, and, though found in the different bacterial species, appears to have in all the same chemic and physiologic properties.

In the preparation of the pyrotoxin, cultures of bacteria several weeks old were first heated and afterward boiled; the dead bacteria were then filtered out, the filtrate concentrated and treated with alcohol, the resulting precipitate being afterward dissolved in distilled water and freed from albuminates by dialysis. By a repetition of the alcoholic precipitation the substance was finally obtained in a comparatively pure state and dried over sulphuric acid.

The pyrotoxin thus prepared is a grayish-white amorphous powder, soluble in water and in glycerin, but insoluble in strong alcohol, ether, or chloroform. It is not injured at the temperature of boiling water. It is very hygroscopic, rapidly becoming fluid when exposed to the air. By the application of various chemic tests it has been shown not to be an albuminoid substance; it differs from the bacterial proteins described by BUCHNER and the nucleins of GAMALEIA, and cannot be classed with the ptomaïns or enzymes. In fact, it is a product that does not fall in any of the groups in which the chemic substances derived from bacteria are at the present time ordinarily arranged.

When injected into animals (rabbits) the pyrotoxin induces all the typical phenomena of a febrile reaction, just as is seen when bacteria themselves, or simple extracts from them, are thus employed. The height of the temperature is directly proportionate to the quantity of the poison administered. The older the cultures used the more intense is the pyrexia, and the steeper are the ascending and descending limbs of the temperature-curve. Marked emaciation, often leading to fatal marasmus, is a characteristic effect of the injections. Serious disturbances of digestion are produced, diarrhea occurs regularly, and loss of appetite is equally constant. Acceleration of the pulse and respiration is frequently associated with marked dyspnea. There is a very evident general weakness, so that the animal staggers when it attempts to rise. At autopsy the intestine is found filled with fluid feces: the vessels are hyperemic; there are signs of excessive secretion of mucus, and Peyer's patches are markedly swollen. The local phenomena at the site of injection vary: if absorption be speedy there may be only edema and hyperemia; if absorption be delayed, by en-

[1] Centanni, E.: Untersuchungen über das Infektionsfieber. Das Fiebergift der Bakterien. Deutsche med. Wochenschr., 1894, Nos. 7 and 8.

closing the pyrotoxin in sterile glass tubes, suppuration may be set up.

CENTANNI separated the pyrotoxin from a large number of varieties of bacteria, both pathogenic and non-pathogenic, and, as we have said, as far as he was able to determine, the products obtained were in all cases, chemically and physiologically, essentially the same. This observation, he thinks, should not occasion surprise, but is rather what should have been expected, as there is plenty of evidence in the literature to prove that cultures of saprophytic bacteria, when injected in sufficient quantity, are capable of causing toxic phenomena, and even death of the animal; besides, the examples of sapremia in human beings produced by non-pathogenic bacteria are so well known that they need only be mentioned to be immediately recalled. As a matter of fact, the earliest studies of fever of bacterial origin, those of TRAUBE and GSCHEIDLEN, were conducted with the putrefactive bacteria, and the pyrogenin of ZUNTZ and ARONSOHN was separated from cultures of the hay-bacillus.

The weakening of the virulence of pathogenic bacteria does not apparently lessen the amount of pyrotoxin in the bacterial bodies. In spore-bearing cultures the extracts are less active than those made from cultures of the same organisms free from spores. CENTANNI is therefore of the opinion that the pyrogenic substance may be included within the spores, and thus be rendered inactive. The pyrotoxin certainly has its origin in the bodies of the bacteria, and most probably, as he thinks, in the chromatic substance. It is possible, he further suggests, that the extracts from certain bacteria owe their activity in the main to the presence of pyrotoxin, and he puts forward tuberculin as an an example, inasmuch as it has been shown repeatedly that a typical tuberculin-reaction can be evoked in tuberculous animals by the injection of extracts of bacteria of different sorts, even of the non-pathogenic varieties.

Cultures of such organisms as the tetanus-bacillus, the influenza-bacillus, and the diphtheria-bacillus contain, of course, other and more important active principles, but the pyrotoxin is always present along with these. The other substances usually act very quickly and powerfully, and may even lead to a fatal termination before the fever-poison has accumulated in sufficient amount in the organism to make its physiologic action clearly manifest. But when these special powerful poisons are destroyed (by heat in the case of toxalbumins, or by extraction with alcohol in the case of ptomaïns) the cultures, like those of all other bacteria, yield on injection the typical febrile phenomena.

That the results of the investigations just outlined, if confirmed, are significant, not alone as far as the general biology of bacteria is concerned, but also particularly with reference to the practical question of a rational therapy for the fever of infectious diseases, goes without saying. It will be necessary henceforth in pyrexia of bacterial origin to recognize a simple intoxication with a perfectly definite poison worthy of being grouped with the intoxications due to tetanotoxin, to ricin, or to abrin.

Inasmuch as it has been possible in many cases, by means of careful vaccination, to produce in animals immunity to the definite bacterial and other vegetable poisons, so that the serum of the animal rendered immune when injected into another animal is capable of nullifying the poison, or of causing the rapid disappearance of the symptoms even after they have once been set up, CENTANNI hoped that he would be able to prepare an antitoxin for this *pyrotoxina bacterica*, and moreover prophesied that, as the pyrotoxin was the same in all bacteria, when once the antitoxin of the fever-poison of a single bacterium had been found, it would be the antitoxin for all pyrexia of bacterial origin. Since his report was published, a second article (by CENTANNI and BRUSCHETTINI[1]) has appeared, in which some experiments are recorded which permit an *à posteriori* view quite in accord with these *à priori* speculations.

BRUSCHETTINI, while experimenting with the influenza-bacillus, had noticed that animals undergoing vaccination very soon failed to react to strong doses of the vaccine, and that the serum of such an animal would not only prevent infection with the influenza-bacillus, but was also capable of bringing about a rapid and considerable depression of the body-temperature. As CENTANNI'S experiments had proved that the fever-poison of the influenza-bacillus was the same as that of other bacteria, what more likely than that the serum immunizing against this disease should prove just as efficacious in combating the fever called forth by infection with other bacteria. CENTANNI and BRUSCHETTINI therefore set to work to test the question in three ways, studying the effect of antitoxic

[1] Centanni, E., und Bruschettini, A.: Untersuchungen über das Infektionsfieber. Das Antitoxin des Bakterienfiebers. Deutsche med. Wochenschr., 1894, No. 12.

serum (obtained from a sheep rendered immune to influenza) on fevers produced (1) by inoculation of pyrotoxin separated from bacteria, or of sterilized cultures; (2) through injection of living cultures of bacteria that set up local infection; and (3) through injection of some of the bacteria that can cause septicemia in rabbits. Space does not permit of a detailed description of the observations made, although many points of interest are recorded: it must suffice for the present to state that the evidence, as far as the work has gone, goes to support the main point sought to be proved—namely, that the serum of an animal vaccinated against the fever induced by one definite species of bacteria exercises its antitoxic influence also against the infection-fevers caused by the most different varieties of bacteria or their pyrotoxin. The influence of the serum is constant, powerful, and continuous, and the protection lasts for at least some time (in one case for seven days).

All these results are most encouraging, but it must be confessed that the antipyrotoxin has not been isolated in purity, that the experiments have all come from one laboratory, and that they are not as yet very numerous. As the science of bacterial toxicology is much younger than that of bacteriology itself, and as we are only now freeing ourselves from too wide generalizations made in bacteriology, it is, above all things, necessary to guard against hasty conclusions and the acceptance, without mental reservation, of new views until they have been approved and confirmed by a number of workers. Nor is it justifiable, as more than one bitter experience has taught, to transfer the result of animal experiments *ohne weiteres* to the domain of human physiology and pathology. After we have satisfied ourselves of the constancy of the results in animals, numerous trials and observations by competent and trustworthy men in large hospitals must be made before general conclusions are warranted.

EDITORIAL COMMENTS.

The British Medical Association.—Through the fraternal courtesy of the *British Medical Journal* we are in a position to present to-day in an abridged form the Address of the President, the Address on Medicine, and the Address on Surgery, delivered before the sixty-second annual meeting of the British Medical Association just held at Bristol. It is a source of no little gratification to be able to publish simultaneously with our distinguished English cotemporary a partial report of the work of the great medical body of which it is so worthy a representative. We would especially commend to the consideration of educators, surgeons, and the general profession the timely and valuable suggestions offered by Mr. Greig Smith in his charming and interesting Address on Surgery.

A National Bureau of Health.—Having wasted much valuable time, and having kept the country all the while on the ragged edge of uncertainty, it is to be fervently hoped that the present Congress will not adjourn without making a law the bill before it for the creation of a National Bureau of Health. With the threatenings of cholera all over Europe and the actual existence of the disease in many places, and with the further possibility of an invasion of the bubonic plague now playing such havoc in China, the new body might soon be able to demonstrate the justification of its establishment.

Immoral Massage.—The *British Medical Journal* has called attention to a form of immorality which it has discovered is practised in some parts of London under the name of "massage." As a result of this exposure the police authorities have taken the matter in hand, and it is likely that the abuse will thus be repressed. The *Journal* calls attention to the social elements involved in the question of directing massage, and makes a timely criticism of the employment of a masseur in the treatment of women on the one hand and of a masseuse in the treatment of males on the other hand. Massage of the uterus the *Journal* regards with suspicion and dislike and would taboo generally.

Ophthalmia Neonatorum.—The outbreak of an epidemic of ophthalmia neonatorum in the tenement-district of New York City should impress legislators with the urgent necessity of enacting such laws as will tend to prevent, as far as possible, the occurrence of the infection and to check its continuance and extension should any case arise. The cost of the necessary measures would be far less than the pecuniary loss entailed upon the community by the loss of vision and other concomitants following this virulent affection of delicate and important structures.

Quackery in England.—The British Medical Association, through the energetic Chairman of its Parliamentary Bills Committee, Mr. Ernest Hart, is engaged in a laudable attempt to suppress quackery in England, and to this end has undertaken a collective investigation for the purpose of securing data for presentation to Parliament demonstrating the magnitude of the evil.

CORRESPONDENCE.

THE TRICHLORACETIC-ACID TEST FOR THE DETECTION OF SERUM-ALBUMIN IN URINE.

To the Editor of The Medical News,

Sir: In an article entitled "A Serious Fallacy Attending the Employment of Certain Delicate Tests for the Detection of Serum-albumin in the Urine, especially the Trichloracetic-acid Test," in The Medical News

of May 5, 1894, p. 477, Dr. D. D. Stewart speaks of trichloracetic acid as an "absolutely uncertain and even dangerous reagent, so likely is it to mislead."

For the introduction of this test into the United States, Dr. D. Meredith Reese, late assistant resident physician at the Johns Hopkins Hospital, is largely responsible. As his work was practically carried on before my eyes, and as I myself have employed the test mentioned, both at the Johns Hopkins Hospital and in private practice, ever since, the number of my individual observations now exceeding five thousand by far, it may not be altogether out of place to say a few words in reference to this matter.

Let us first of all examine a little into the reasons that led Dr. Stewart to look upon trichloracetic acid as such an "uncertain and even dangerous reagent." The statement appears to be based upon an examination of the urine of 105 young men, all of whom, save one, regarded themselves as in good health at the time. The examinations were made in order to ascertain the frequency of reaction to the more delicate tests for albumin of urine from *normal* individuals. On examination, with but three exceptions, all of the 105 specimens gave an "undoubted" response to the trichloracetic-acid solution; of the remaining 102 *normal* individuals, 20 gave an undoubted serum-albumin reaction to nitric acid by the contact-method, so that we may at once throw out these 23 cases, *i. e.*, 21.6 per cent. The conclusion thrusts itself upon the reader's mind rather forcibly, that the "normal" material was rather unfortunately chosen, one person not considering himself in good health, another having a weak heart, being an overtrained athlete; another having a mitral systolic, and still another an aortic diastolic murmur. In but 2 of the 20 cases in which an "undoubted" serum-albumin reaction was obtained with nitric acid, had a microscopic examination of the urine been made, the result, however, not being stated. Dr. Stewart declares that not one of these cases showed evidence of renal disease, a statement that prompts the question whether the examination of a patient's urine for albumin is *altogether* made for the purpose of establishing the existence or non-existence of *renal* disease. Of a physical examination of the remaining 82 cases, Dr. Stewart furthermore makes no mention, but assumes that because in these the nitric-acid test proved negative (I suppose that this examination was made, although no direct statement in this connection is made), "normally urine contains traces of serum-albumin, or more probably that the response to trichloracetic acid was due to the presence of a body of nucleo-albuminous (or mucinous) character of extra-renal origin." In other words, Dr. Stewart appears to regard the boiling and nitric-acid tests as representing the extreme limits of delicacy for the detection of albumin!

Although it might be argued that, as 19 per cent. of "normal" individuals presented traces of albumin in the urine, recognizable by the nitric-acid test, this latter must also be regarded as "uncertain and even dangerous"—a rather precarious position, however, to take—there remains to be considered the fact that the urine of 82 cases among the 105 reacted in a positive manner to the trichloracetic-acid test, and not to the nitric-acid test (that this has been made, I merely infer, as already pointed out), a reaction that Dr. Stewart refers to the presence of a mucinous body. In Reese's work it is pointed out that "that frequent source of error, urinary mucin, or an extra-renal albuminous body, was not regarded in question." On the most careful perusal of Dr. Stewart's work I confess myself unable to find a single statement or experiment in support of the view that he himself (rather cautiously, it is true) expresses—namely, that the trichloracetic-acid reaction obtained by him is referable "more probably" to the presence of a mucinous body, an inference as to the validity of which he "has no doubt."

Rather interesting, not to say naïve, is the manner in which Reese's 14 cases (not only 11, as Stewart has falsely read) are viewed, in which the nitric-acid test was negative, the trichloracetic-acid test positive, and in which granular, hyaline, and epithelial casts were found. To Dr. Stewart these cases are "of especial interest, as they indicate the frequency of non-albuminuric nephritis!" In support of this view, apparently, he cites the words of Dr. Osler, that "word comes over so constantly from the laboratory—'degenerative changes in the kidneys'—in patients whose urine showed no special alterations." I should like to ask Dr. Stewart whether or not he regards the presence of granular, hyaline, and epithelial casts, as found by Reese, as especial alterations of the urine.

When Dr. Stewart then goes on to state that these observations of Reese's "indicate, beyond a doubt, to my mind that the trichloracetic-acid reaction was but a coincidence, obtainable markedly in as many consecutive healthy subjects," in other words, that the reaction obtained was referable to a mucinous substance, he certainly goes a little too far, and has apparently forgotten our modern standpoint in reference to the significance of tube-casts. On page 159, Part II, of Neubauer and Vogel's *Urinary Analysis*, he may find the following: "As to the significance of tube-casts it must be remembered that these, according to our present knowledge, consist of albumin, which coagulates under the influence of the acid reaction of the urine in the renal parenchyma in a peculiar hyaline manner. They merely represent a solidified portion of the albumin held in solution by the urine; their elimination thus essentially indicates the existence of an albuminuria." That these tube-casts, however, consist of a mucinous substance has, as far as I know, never been demonstrated. I can, therefore, see no reason to assume that the trichloracetic-acid reaction in Reese's cases should be referable to the presence of a mucinous body, when the presence of serum-albumin is already demonstrated by the occurrence of tube-casts.

That the association of casts with the reaction obtained by Reese was furthermore not a coincidence, as Dr. Stewart is pleased to regard it, and "obtainable markedly in as many consecutive healthy individuals," is shown by the fact that in 25 cases of Reese's series *no reaction whatsoever was obtained*. It might be argued, that although casts may be present in urine, a positive though faint albumin-reaction may not necessarily be due to serum-albumin, but, as Dr. Stewart would like to have it, to a mucinous body, as cylindruria has been said to occur in the absence of albuminuria. In antagonism to such an argument I should state that I have frequently observed the presence of hyaline tube-casts in urine

when the nitric-acid test and the boiling test with acetic acid were entirely negative, but in which the trichloracetic-acid reaction furnished a positive result; in other words, I can say that with the employment of trichloracetic acid I have never seen a case of cylindruria *sine* albuminuria, a point that I have repeatedly demonstrated to the gentlemen who participated in my course in urinary analysis at the Johns Hopkins Hospital.

A few examples may not be altogether out of place:

Case I.—Here the urine was light-yellow in color and clear, with a light, flocculent sediment; the reaction was strongly acid, the specific gravity 1020; sugar was absent, the indican moderately increased. There was no reaction on boiling, or with nitric acid; with trichloracetic acid a fine ring was obtained. Microscopically, hyaline and slightly granular casts were found. According to Dr. Stewart, this was a mere coincidence. On physical examination the patient was found to be hemiplegic, the palsy having developed a year before, at the age of fifty-three. There was a high-tension pulse and a ringing aortic second sound. In view of the history of the case and the examination of the patient, it would appear rather dogmatic to regard the positive trichloracetic-acid reaction as a mere coincidence and dependent upon the presence of a mucinous body.

Case II.—In this the urine was of a dark-amber color, and clear, with a light, flocculent sediment; the reaction was markedly acid, the specific gravity 1030; sugar was absent; the indican moderately increased; there was no reaction on boiling, or on applying the nitric-acid test; with trichloracetic acid, however, a trace of albumin was noted; microscopically, hyaline and granular casts were found. Clinically, the case was one of uremia, with convulsions.

Case III.—The urine was of a light-amber color, clear and acid, with a light, flocculent sediment and a specific gravity of 1017. A trace of albumin, not demonstrable on boiling or with nitric acid, was noted with trichloracetic acid, together with the presence of hyaline and granular casts. The patient was seventy years old, with well-marked arterio-sclerosis. Death took place a few months later in uremic coma. Shortly before death a large amount of albumin was demonstrated on boiling and with nitric acid.

Case IV.—The urine was of a light-amber color, clear and acid, with a light, flocculent sediment and a specific gravity of 1021. A trace of albumin was demonstrated with trichloracetic acid, although the reaction on boiling and with nitric acid was negative. There were also hyaline casts. The patient died two weeks later. At the autopsy marked arterio-sclerosis, degenerative changes in the kidneys, and thrombosis of the coronary artery were found.

Case V.—The urine was light-yellow in color, slightly cloudy, faintly acid, with a specific gravity of 1023. No indican-reaction was obtained. On boiling, after the addition of acetic acid, as well as with nitric acid, no albumin was detected, but with trichloracetic acid a trace was demonstrated. Microscopically, hyaline and slightly granular casts were found. Clinically, the case was one of albuminuria Da Costæ; a few weeks previously albumin was obtained on boiling and with nitric acid to a degree that would have directly excluded the man from life-insurance. The same may be stated of all the cases of albuminuria Da Costæ that I have observed in the course of recovery.

On p. 481 of The Medical News Dr. Stewart says: "With trichloracetic acid, unless the response be frank and outspoken, . . . the nature of the result must remain in doubt and cannot be utilized to account for the symptoms, if nephritis be suspected, as it is, perhaps, more than likely not due to serum-albumin." From this we may in the first place conclude that the response to the trichloracetic-acid test obtained in his eighty-two positive cases was *not frank and outspoken*—and why then call the reagent uncertain and dangerous. If such be the case, and it could not be otherwise, as Dr. Stewart would then have without doubt agreed that all of his 105 cases were albuminurics, it is rather surprising to me that he speaks in such a positive manner of this reagent as being uncertain and dangerous. On further reading, however, the zone of contact is described as varying from a very narrow ring in the least marked to one ot many lines in thickness in the most marked. I must confess that I should always call a ring "many lines in thickness" a frank and outspoken reaction, and in my personal experience at least I am sure that I have never met with such a ring in a *normal* individual.

Now, as far as normal material goes, Dr. Stewart appears to be laboring under the same delusion as Senator and others, namely, that a person must be healthy because he considers himself healthy. In life-insurance work the remarkable health of the applicants is frequently most striking, and only recently have I had in my hands a case of this kind in which all questions as to indigestion, habitual constipation, headaches, etc., were promptly answered in the negative, and a history of unusual health given. In this case albumin was found in large amount, not only demonstrable with the trichloracetic-acid test, but also upon boiling and the addition of nitric acid. The patient later applied to me for treatment, and subsequently furnished the information that his digestion had been miserable for years and years, that he was worn out, felt weak, etc. The cases of Dr. Stewart in which a ring many lines in thickness was observed I should most decidedly regard as cases of true albuminuria, and suggest not only a most careful physical examination, but also an inquiry into digestive derangement, a quantitative estimation of uric acid and oxalic acid in the twenty-four hours' urine, and a careful microscopic examination. To the frequent occurrence of albumin in the urine of young men, particularly associated with an increased elimination of uric acid or oxalic acid, or both, Da Costa has drawn attention in the *American Journal of the Medical Sciences*, 1893, No. 1: a condition that I myself have been able to observe quite frequently.

As far as the "fine ring" is concerned, furthermore, this is merely an optical delusion. Every urine is slightly turbid, and this turbidity will become more marked, and particularly so at the point of contact when brought together with a clear solution, and becoming more marked as the specific gravity of the reagent used approaches that of the urine. With nitric acid this is less marked than in the case of the trichloracetic-acid solution, the specific gravity of the former being greater than that of the latter. In this respect I fully agree with Dr. Stewart when he says that the reaction must be frank and outspoken, but differ

with him in so far that, as I have already stated, I must regard a ring many lines in thickness as a plain and outspoken reaction, such as is not to be found in a normal individual. I should also state that I have applied the trichloracetic-acid test to urine of both normal and pathologic subjects hundreds and hundreds of times with a negative result.

In conclusion, I wish to correct an erroneous statement that Dr. Stewart makes when he says: "Since writing the foregoing I have learned that trichloracetic acid has ceased to be regarded with its former favor in this—the Johns Hopkins—hospital, especially by Professor Kelly, for the reason stated—its impracticable delicacy." The trichloracetic-acid test is used in Dr. Osler's department now, as formerly, whenever in any case the nitric-acid test and that of boiling failed and the case is regarded of sufficient importance to warrant a more careful examination of the urine. In the report of the urinary examination of ninety-one gynecologic cases by Howard A. Kelly, M.D., and Albert A. Ghriskey, M.D. (*Johns Hopkins Hospital Reports*, 1890), the following may be read: "The promptness of the reaction with trichloracetic acid, as well as its delicacy, commends its use." At the present time it is true that the acid is no longer used in Dr. Kelly's department on account of its delicacy, and I freely admit that its delicacy is too great for the surgeon in general, who looks for definite renal changes, *i.e.*, for the existence or non-existence of nephritis. I must, however, emphasize that it is high time that both surgeons and internal clinicians should recognize the fact that the presence of albumin in the urine is not necessarily indicative of nephritis, and is not so in the majority of the cases in which it is found, and that the subject of albuminuria is now undergoing the same process of evolution that we have seen occur in the case of dyspepsia. Our attention and energy should be directed toward a scientific classification of the various forms of albuminuria, and the clinical recognition of the association of albuminuria with definite metabolic disturbances, rather than toward fault-finding with tests as to the practicability and extreme value of which there appears to be no doubt.

Respectfully, CHARLES E. SIMON.

1302 MADISON AV., BALTIMORE, MD.

To the Editor of THE MEDICAL NEWS,

SIR: I beg to thank you for referring to me for brief reply Dr. Simon's rather voluminous protest to the conclusions of my paper on fallacies attending the employment of delicate tests for albumin in the urine. Stripped of quibble and repetition, Dr. Simon's criticism amounts to the following: The material furnishing results was unfortunately chosen; a number of the 105 cases were not "normal" individuals; in those that were and the reaction consisted of a fine ring, the latter was an "optical delusion." Dr. Simon's own experiments with trichloracetic acid have invariably shown that a reaction with this reagent is a reliable proof of a departure from health, indicating disease, renal or otherwise. Incidentally several errors in statement are asserted to occur in my paper.

I distinctly stated in the article criticised, that it was not an inquiry into the frequency of a so-called physiologic or functional albuminuria. It was prepared to form part of a discussion at the meeting of a medical society, and was intended merely as a preliminary introduction to a general study of the subject of albuminuria. It represented a brief inquiry as to the frequency of reaction of urine to certain delicate tests, from a fairly large body of young men who regarded themselves as in ordinary health. The specimens, as stated, were collected for me by Dr. L. Wolff (from his class in urinanalysis in Jefferson College) and are still regarded by him, I am permitted to say, as representing unusually fair material for such experiments. Dr. Wolff, in announcing to the class the object for which the specimens were desired, conscientiously endeavored to fulfil my wish, so far as was possible, to procure the urine of "*normal individuals, those* [in other words] *so far as was known that were without evidence of renal disease.*" Dr. Simon, in disregarding this important limiting clause, as he does whenever he quotes the word *normal*, perverts my very obvious meaning. If he had given a little attention to the literature of the subject of functional *albuminuria major* he would have found that my percentage of gross albuminurics, in nearly all of whom the presence of albumin in the urine was found to be cyclic and probably the result of fatigue, was, though high, not remarkable. He would have found that it is not uncommon to occasionally obtain a marked albumin-reaction to nitric acid (such as would also be "frank and outspoken" with trichloracetic acid) in a subject normal as regards other evidence of nephritis than the presence of albumin.[1] In a second series of thirty-five cases, mentioned in my paper dealing with the reactions of nucleo-albumin, which appeared in THE NEWS, July 14, 1894, p. 29, nearly all of which were furnished by Dr. G. M. Gould from among his acquaintances, the reaction with trichloracetic acid was also positive. These were, as detailed, morning specimens from young adults in apparently robust health. In none of the total 140 was there the slightest cause evident for deception on the part of the donors as to their physical condition, as might be the case in life-insurance or civil (compulsory) examination. I was previously unacquainted with any of those contributing save six. The two with cardiac murmurs, which were discovered as the result of subsequent examination, were, like ourselves, previously unaware of the existence of a heart-lesion. The fact being very apparent, after a large number of these examinations had been made, that probably all normal urines reacted to trichloracetic acid, it was not deemed necessary, in view of the amount of work that would be entailed, without a number of assistants, to make exhaustive physical examination of all those concontributing, or undertake microscopic examinations of the urine other than the specimens reacting to the less delicate tests. Microscopic examination was made in most of the cases of major albuminuria as well as frequent chemical examination of specimens of urine furnished by these on other occasions. The paper, prepared as it was to form a part of a discussion, was written before these details could receive adequate attention. As to the nineteen cases that I stated showed no

[1] My meaning of the words "frank and outspoken" as applied to the extent of the trichloracetic-acid ring, as indicated by the context (THE NEWS, May 5, 1894, p. 481, 2d col., 3d par.), is so evident that it is needless to notice the portions of Dr. Simon's criticism referring to them.

evidence of renal disease, and concerning which Dr. Simon makes an inquiry, he will find that the context of the portion of my paper referring to this point shows that it is to *physical examination* that I refer.

In the application of the tests as detailed I was careful that another beside myself should simultaneously view the results obtained, in order that all question of error should be eliminated. In the series of 105 examinations I had the kind coöperation of Dr. Henry Leffmann, a chemist of whose repute it is unnecessary to speak. In the second series, mentioned in the later paper, in which trichloracetic acid was the only delicate test employed, the results were studied with me by Dr. L. Wolff, who, as is well known, has for years been demonstrator of chemistry and urinology in Jefferson Medical College. So that, in view of the agreement of these gentlemen with me as to the nature of the results as criticised, an attempt on Dr. Simon's part to explain as an "optical delusion" the more delicate reactions obtained, which in his work he is unable to note, save in selected cases, is simply puerile, and not worth discussion. It may, however, be stated that the influence of shading, inclination of tube, and especially the effects of heat, rendered all chance of illusion impossible, even were his curious statement as to the relative specific gravity of nitric acid and trichloracetic acid accurate. This statement, however, is both inaccurate and misleading. The solution of trichloracetic acid as employed by me was a thoroughly saturated one, as Dr. Simon should have seen from reading my paper, for I lay stress on this. This same solution is always presumed to be used in testing for albumin, and it was stated to have been employed by Dr. Reese in his experiments. Now, while the specific gravity of nitric acid is 1.41, that of a saturated solution of trichloracetic acid is considerably greater than this. A solution recently made, and now on my shelves, has a gravity of 1.56. This, from the manner of its preparation, is regarded as of somewhat less density than that employed in the experiments. In my paper especial stress was laid upon variation in result due to carelessness in the preparation of a concentrated solution. It is probably to some such fault in technique as this that Dr. Simon's lack of result is due, and if he is using a dilute solution he may have encountered optical illusions of the nature of which he writes. If, however, an optical "delusion" could be thus produced, it would become evident, if not with nitric acid, at least with picric acid solution, with Millard's test, and other reagents whose specific gravity more nearly than trichloracetic acid approaches that of urine; but this source of error, I am confident, can be excluded. But merely for the sake of argument, granting that those trained in urinalysis might be deceived through an optical error, then this would be the very best argument against the practical utility of the trichloracetic-acid test, for Dr. Simon apparently reserves for himself alone the power which he denies others also trained in chemical manipulation, of distinguishing between an "optical delusion" and an actual, fine ring, significant of a trace of albumin. For, on turning to the report of the five cases in his letter, it is evident that this same fine ring which I have shown may be encountered in the urine of all in health, was present in each. It is stated that in none of the five did a reaction occur with heat or with nitric acid, but that in the first "with trichloracetic acid a fine ring was obtained," and in the others also, a "trace of albumin" was so noted!

As to "our modern standpoint in reference to the significance of tube-casts," that their existence depends upon the presence of albumin, I would refer Dr. Simon to literature more modern than that which he quotes, which assigns a totally different origin for renal cylinders. This view, which I believe is that now generally accepted in preference to the more antiquated and less probable one cited, Dr. Simon will find, with certain references, in the latter part of a paper by myself in The News of April 14, 1894, p. 393. It is there stated why I hold that serum-albumin (or globulin) may be absent and nucleo-albumin present in certain cases in which casts are detected in the urine.

Several of Dr. Simon's statements, however foreign they are to the point at issue as to the utility of trichloracetic acid as a clinical test for albumin, and quibbling as they do with the facts, demand special notice, as, uncorrected, they must inevitably lead to a false impression in the minds of readers not familiar with my work. With a careless disregard for accuracy, in unison with the general tenor of his letter, he states that I have falsely read Dr. Reese's figures. I have but to refer to that portion of my paper in which this so-called false reading appears to show how absolutely incorrect such a statement is. After remarking that many cases had been encountered, the urine of which responded only to trichloracetic acid, I further remark that "in a number of these cases (11) granular, epithelial, and hyaline casts were found." Dr. Reese's report distinctly reads: "In 11 of these cases granular, epithelial, and hyaline casts were found."[1]

Again, the statement that I appear "*to regard the boiling and nitric-acid tests as representing the extreme limit of delicacy for the detection of albumin!*" is totally without warrant. My meaning clearly is, as any one unbiased reading my paper will acknowledge, that these tests represent, from our present knowledge, the limit of *practicable* delicacy; and there is no question that the most conservative of internal clinicians are rapidly coming to this conclusion. Among a large number holding the view that Dr. Simon criticises, I need only mention Tyson, of Philadelphia, and Saundby, of Bristol;[2] and Shattuck,[3] of Harvard, who thinks similarly, in a recent paper on the subject of albuminuria quotes Prof. E. S. Wood, of the same school, as also of this view. This opinion was also strongly maintained in the recent discussion of my paper on "Nucleo-albumin" before the College of Physicians of Philadelphia. Such men as Prof. J. M. Da Costa and Prof. J. P. Crozer Griffith questioned the practical utility of the more delicate tests. Prof. Da Costa remarked: "I am more and more coming to the conclusion that delicate tests for albumin are of little use to the clinician. I believe the saying of Grainger Stewart to be correct, that 'if heat and nitric acid properly applied show no trace of albumin, albumin may for practical purposes be discarded.'" That this view is

[1] Johns Hopkins Bulletin, February, 1890, p. 33.

[2] See my paper on the trichloracetic-acid test in The News, May 5, 1894, p. 477.

[3] Boston Medical and Surgical Journal, June 21, 1894, p. 613.

prevailing among the most enlightened of life-insurance examiners is evident from the fact that at a recent meeting of the Life Assurance Medical Officers' Association, of London, it was held that "urine which did not show a trace of albumin with the boiling and cold nitric-acid tests properly applied might be considered free."[1]

As to the erroneous statement that I am alleged to make concerning the waning favor in which trichloracetic acid is regarded in the Johns Hopkins Hospital, especially by Dr. Kelly, I fancy it is plain enough to any one reading the curiously worded correction of Dr. Simon, that he unconsciously acknowledges the correctness of my assertion. I might here state that as my informant in the matter was Dr. Ghriskey, I had no doubt as to the accuracy of the statement as quoted.

Finally, to conclude, the essence of the whole question is whether or not the trichloracetic-acid test is or is not of practicable clinical delicacy. My own view, further elaborated in the paper on nucleo-albumin (THE NEWS of July 14, 1894), and based on good evidence, is very decided as to its inutility. I show that, with *careful* technique, the indications point to an albumin-reaction being obtained with any specimen of all urines from the healthy. The questions there considered, as to the nature of the albuminous body reacting, whether serum-albumin or nucleo-albumin, is without practical bearing on the point at issue. That an albumin-response may be unquestionably obtained in all urines indistinguishable from that of serum-albumin, my results in a series of now over 150 consecutive cases so strongly show that I am forced to the conclusion that Dr. Simon's negative results in his large number of cases must simply be due to lack of proper technique in the application of the test, or to failure of observation; there is no other explanation tenable, and direct evidence of the former is at hand in his statement as to the density of the solution of trichloracetic acid used by him.

It is, perhaps, unnecessary to state that I shall be glad to practically demonstrate the correctness of my conclusions to any one sufficiently interested who will furnish specimens of urine from those not renal suspects.

Respectfully, D. D. STEWART.

2620 N. FIFTH STREET, PHILADELPHIA.

SOCIETY PROCEEDINGS.

BRITISH MEDICAL ASSOCIATION.[2]

Sixty-second Annual Meeting held at Bristol, July 31, August 1, 2, and 3, 1894.

FIRST DAY—JULY 31ST.

DR. EDWARD LONG FOX, of Bristol, delivered the President's Address, which was entitled "On the Medical Man and the State." After a word of thanks, and after extending a hearty welcome, reference was made to the last meeting of the Association held at Bristol, which was the thirty-first, and had taken place thirty-one years before. Then the work of the meeting had not yet been divided into sections, and no one dreamed of the pecuniary condition of the Association ever being what it is today, or that branches would be planted, as they are, in most of the British Colonies and dependencies.

As a body the medical profession is above party. Its highest aspirations tend to the formation of a pure commonwealth. The poor, the sick, the criminal are its daily study, primarily for the relief of the individual, but with nobler and farther-reaching aims, namely, that poverty may be mitigated by more healthy surroundings; that sickness may be diminished by the education of the nation in the wiser laws of health, by increased temperance, and by knowledge from an early age of the common facts of physiology; and that the criminal class in the future may occupy narrower limits, because no longer the victims of a debased heredity. Poverty, disease, and crime—these are the objects of its investigations as a body, these are the foul blots in the State for which it seeks amelioration.

What numbers of intellectual people, whose work should be so high in poetry, in art, in political or professional life, in commercial undertakings, and even in manual labor, are unfitted for giving their best to the State by an unhealthy environment, by ignorance how to use and how to husband their brain-power, or by yielding to this or that self-indulgence, the very yielding a neurosis! It is but a truism to say that a model State needs the best intellect of each and all her children. Medical men have to work against hereditary influences, induced by the ignorance of many preceding generations—the "good old times," as they are so fondly and so falsely called. But the work is being done. From the highest to the lowest in the State each individual must be brought to recognize that his power of doing good, of duly filling his appointed place in the commonwealth, of carrying out the highest form of altruism, depends in wide measure on his ruling his life in accordance with physiologic laws, for a knowledge of which the world is mainly indebted to members of the medical profession.

All science is cosmopolitan, and medical science, perhaps, especially so. This or that point may have been brought into prominent notice in England, on the Continent, in America, or elsewhere. But the profession in every State is quick to recognize everything that bears upon the subject it has at heart, the well-being of the human race.

Step by step the need of medical guidance is permeating more or less every branch of the public service. *Experientia docet.* What thousands of lives have been saved by the careful observation of the sources of disease by medical men in various parts of the world! by none more ably than by the medical officers of the naval and military services. In their observations upon cholera, yellow fever, and the various forms of malaria, for instance, especially such as in some of their symptoms simulate yellow fever, some of the best work has been done by the medical officers of the army and navy.

The chief need of an ideal State, apart from the legislative and executive departments, is, that the people should be healthy, strong, temperate, and wise. Whatever the form of government, whatever the strife of parties, the nation made up of indi-

[1] See British Medical Journal, June 16, 1894, p. 1324.

[2] Prepared from advance-sheets kindly furnished by the British Medical Journal.

viduals is the only ruler. The medical profession has to deal first with individuals, and then with conglomerate bodies of men. Granted a strong development, founded partly at least on obedience to the facts of heredity and on good sanitary laws, the race will and must advance in all physical and mental conditions. So far from being considered, as in Plato's time, as either gainers of money or tenders only of the sick, it is the proud boast of the profession that much of the medical thought of the day, and for many years past, has been devoted to the prevention of disease.

Speaking of Jenner, it was said that he not only created a sure method for the prevention of the most terrible scourge England has ever known, but unwittingly laid the foundation of all microbic pathology. His reward was that each year he saved from death in England alone thousands of lives; and perhaps three times as many owed to him their immunity from the disfigurement and the local diseases consequent on smallpox. It was considered monstrous that in less than one hundred years from the birth of vaccination, the great work of this benefactor to the State should be rendered partially ineffectual by the crazy cry of the liberty of the subject. Should the men be left untouched and unhindered, who, from faddish fears of the evils of vaccination—evils that might be entirely avoided by the use of calf-lymph—are endangering thousands of their fellow-citizens, and doing their utmost to interfere with the only reward to which Jenner looked forward, the well-being of the human race?

It is in the realm of investigation that the medical profession has given some of the best service to the State. Enormous advantages have been conferred upon the State by the light thrown by many investigators on the subject of bacteriology. Already much is known about abscess, enteric fever, diphtheria, cholera, pneumonia, tuberculosis, tetanus, and glanders. Already M. Pasteur's investigations have brought the death-rate from rabies to less than 1 per cent. Already, through the efforts of the same great experimentalist, millions of sheep are being inoculated against anthrax in various parts of the world. Already antiseptic surgery, the splendid result of the work of Sir Joseph Lister, may claim to have made possible hundreds of operations, hitherto too dangerous to attempt, and to have saved thousands of lives. The whole course of medical treatment is being revolutionized by these studies. The coming generation of doctors will have their time taken up, even more largely than in past years, in rendering persons immune to the attacks of disease. It is known now that abscesses caused by staphylococci have a tendency to remain localized, whilst those from streptococci are often followed by metastatic abscesses, as in erysipelas, puerperal fever, and ulcerative endocarditis.

It is now known that the tubercle-bacillus is found in chronic bone-disease, and that if present alone the disease is a chronic one, whilst if the streptococcus pyogenes is present also the disease is more quickly fatal; that the suppurations accompanying tuberculosis are due, partly to the tubercle-bacillus itself, or, rather to the poisons resulting from the action of that bacillus, but partly also to other microörganisms; that the bacillus diphtheriæ is found chiefly on the surface of the false membrane, and that the fatality of the disease depends on the poison secreted by the bacillus, whilst the presence of streptococci renders the disease more grave, the increased virulence being due to the presence of both these organisms together. Acute pneumonia is caused by the pneumococcus of Talamon-Fraenkel, although often in association with the streptococcus pyogenes. This pneumococcus, too, may produce abscesses in patients free from pneumonia, as in purulent pleurisy, ulcerative endocarditis, and suppuration of the nasal fossæ. The fact that this microbe is present in the saliva of healthy people proves that these diseases have also a non-microbic element. Some condition of the sympathetic influencing the caliber of the bloodvessels or some morbid condition of the vagus or of the accelerator nerves, or some inherited vulnerability, with all its possibilities, must probably be a precedent factor. The typhoid-bacillus is often accompanied by other microörganisms, especially the streptococcus pyogenes or the staphylococcus aureus and albus. The study, too, of tetanus might, if time permitted, open up a further story of the mode of destruction of these microörganisms, as the leukocytes refuse to take into their interior the tetanic bacillus when other microörganisms are present in the wound at the same time.

Is it not remarkable that in a practical country like Great Britain the existence of such beneficial institutions as Research Laboratories is left to the liberality of private individuals? Is it not remarkable that the State has nothing to do with them, except by utilizing the advances in preventive medicine, engendered by the labors of those that are connected with them.

Perhaps next in importance to the study of bacteriology is the good work done by medical men, and in part acted on by Parliament, on the subject of noxious trades. Here especially does the State owe much to members of the medical profession.

There is now no portion of the human frame in which disease is not being traced to its source by medical philosophers with a view to its prevention or its cure. In no department has better work been done than in the investigations of the nervous system. In no department has the result of such investigations been of more permanent utility to the well-being of the State.

What is still partially needed for the brain itself has been in large measure accomplished for the medulla oblongata. How many lives have been preserved to the State by the more accurate knowledge of this small portion of the nervous system. Forming a connection between the brain and spinal cord, in some respects belonging to the spinal, in others to the cerebral system, how many centers are represented here.

Sympathetic reference was made to the late Prof. Charcot.

Good work has been done in the medical investigations of akromegaly and myxedema. The peculiar

symptoms classed under the latter denomination are strikingly improved by the injection of the organic liquid extract from the thyroid gland. This is only one instance of the benefit conferred by the use of these organic liquid extracts from the glands and other organs. The use of cerebrin in neurasthenia, tabes, and even in some cases of epilepsy, of thymus fluid in pseudo-hypertrophic paralysis, of a liquid extracted from the medulla of the bones in the treatment of anemia, debility, and lymphadenoma, opens up a new line of thought both in physiology and therapeutics. The value and importance of such investigations is still *sub judice;* but when, as in myxedema, some morbid condition of the system depends upon the absence or disease of a certain organ, it was not unreasonable to hope that the exhibition of this organ, or of healthy preparations from it, might be beneficial. And this mode of experimental therapeutics will lead to a better classification of disease and to the power of generalization of many morbid phenomena that hitherto have been absolutely unrelated.

This new mode of treating myxedema leads up also to the question of feeble-mindedness in children, cretinism, and especially sporadic cretinism, which is only myxedema in childhood.

The subject touches biologists on questions of heredity, surgeons with reference to the relief of synostosis, and physicians, legislators, and criminal lawyers in its various phases. It is being learned that, except in the case of the microcephalous, cranial developments do not help much in these researches—not even pathologic appearances. The power of attention, and the consequent results of education, are almost the only trustworthy data for differentiation. But this benefit to the State, due mainly to members of the medical profession, obtains not only in raising some of these afflicted ones to a dim apprehension of the abstract, but many more to a condition in which they are partially, at least, able to earn their own living, and be no longer wholly a burden to the community.

It is a mere truism, more or less generally recognized, that for hard work, for self-abnegation, for devotion to the good of others, the medical profession, from student-life onward, is a type for the imitation of the nation at large. Plato spoke of medical men with some disdain as "gainers of money," but that sneer can never be applied to the medical Poor-law officers. Amid the constant pressure of hard work, amid difficulties of all sorts and kinds, with continual disturbance of rest, and with demands on their mental resources more incessant than is usually experienced among the rich, the Poor-law medical officer, either at the workhouse or in district-work, knows no repose, and with a salary so inadequate that the State ought never to sanction it, becomes the hearty and untiring friend of the poor, a pillar of the State not only by the results of his devotion to his duties, but by the splendid example of his life.

But professional influence permeates the nation in many directions. It is the enemy of excess of all kinds. The medical experience of the day has set itself against excess. And not only as to food. A vast number of the profession may not be total abstainers from alcohol, but the majority are examples and teachers of temperance.

They were medical men who made experimental observations that placed this question on a basis of truth and common sense. How important is it for the nation to know that alcohol is, with certain exceptions, unfitted for childhood: that any excess in muscular work, as in the forced march of an army, is rendered far more difficult by its use; that it not only fails in giving power in the work of the muscles and the heart, but acts distinctly as a depressant; that it never enhances the temperature of the body, and that in its pure state it is in no sense food.

It is to medical influence that the sensible care of children, the due relation of muscular and of mental work in schools, the methods for regulating the health of body and mind amid the railway pace of modern life, the prolongation of existence to a ripe old age, are almost wholly due. What assistance, too, does it give so often to the law, though doubtless in this relation it would be better that in controversial cases the medical witnesses on each side should meet in consultation.

Second Day—August 1st.

The Address in Medicine was delivered by Sir T. Grainger Stewart, of Edinburgh. He took up for consideration the nature and treatment of influenza.

He cited evidence of an epidemic occurring on the Continent of Europe in 1387 and of another in Scotland in 1562. Particular reference was made to the complications and sequelæ of the disease.

The alimentary system was affected in a great variety of ways. Apart from the disturbance attending the acute attack or primary disease many patients suffered for weeks or months afterward from various digestive troubles. In such cases there was no doubt that the gastric symptoms were due to influenza, but it was not easy to say whether the gastric mucous membrane was the structure primarily affected, or whether the nerves supplying the stomach were at fault.

The hemopoietic system exhibited innumerable changes. Ordinary anemia was commonly observed, and forms so severe as to warrant their being called pernicious now and then occurred. But among the most important of the blood-changes noticed was purpura hæmorrhagica.

It is difficult to say how these blood-changes are brought about, but it must be kept in view that at least one of the structures standing in important relation to the blood is affected, namely, the spleen; that it is often enlarged in influenza as it is in so many fevers; and it is not unreasonable to suppose that the bone-marrow and other structures may be similarly involved, and that the blood-changes may be due to these.

But, apart from structural alterations of the blood, chemic changes have been frequently observed to result from influenza. Perhaps the most typical is the occurrence of gout during convalescence from an attack.

Diabetes mellitus has been found to stand related to the influenzal process in two ways—for those who have been suffering from diabetes and have taken influenza showed a proclivity to diabetic coma, and, in a considerable number of cases, the diabetic process itself took origin just after influenza.

It is possible that changes in the central nervous system may afford the explanation of the occurrence of diabetes in the sequence of influenza, or it may be that organs such as the liver or the pancreas, which stand related to the transformation of sugar in the economy, may be directly affected by the morbid process.

The circulatory system exhibited some of the most interesting post-influenzal phenomena and of considerable variety. In some instances the heart's action was unduly slow, in others excessively rapid; in the first instance as a result of a diminution of the action of the cardiac motor nerves; in the second of a diminution of inhibition. In some cases the heart was rapid and irregular, and there existed marked dropsy as a result of increased backward pressure from the failure of the heart's action. In some of these cases it is probable that degenerative changes occurred in the muscular fiber of the organ. In other cases a fatal result occurred from sudden failure of the heart's action, sometimes with, and sometimes without, fatty degeneration of the muscular fiber. Pericarditis was frequent, endocarditis occasional, and perhaps myocarditis also.

The respiratory system suffered changes more frequently in connection with influenza than did any other organs of the body. In some cases bronchitis persisted for a longer or shorter time. In some of these, without doubt, that inflammation was of a specific influenzal character, the bacilli being demonstrable in the sputum all the time. In others it was, perhaps, of a simple non-specific kind. The influenzal process has been observed in relation with bronchitic asthma. The explanation is to be found partly in the local effects of the influenzal process, and partly in the disturbance of the nerves supplying the bronchial tubes, which stand so definitely related to asthma.

Pneumonia was by far the most formidable sequel of influenza, and displayed marked differences of type from the normal course of the disease. Moreover, its fatality appeared to vary in the recent epidemics. Every variety of pneumonia presented itself, but the catarrhal was most frequent, and that of an acute and peculiar type.

The croupous form was also frequent, and pleurisy and empyema accompanied it in a considerable number of instances. In explanation of these complications it may be assumed that the catarrhal pneumonias were due to extension of inflammation from the bronchi to the ultimate air-cells. In the cases of croupous pneumonia the organisms of Friedländer and Fraenkel were abundant enough, and streptococci were found in the empyema cases. There was no reason to suppose that these organisms were more abundant or more active during the influenza epidemic. The difference lay in the greater susceptibility to the action of the organisms induced by the influenzal process.

The relationships between influenza and pulmonary tuberculosis were equally striking and varied. In not a few instances pulmonary tuberculosis originated in an attack of influenza, and frequently tuberculous patients, whose condition had been quiescent or scarcely advancing, suddenly developed pronounced symptoms, and went on rapidly to a fatal result. The relationship between the two processes seems to depend on the fact that influenza so affects the system as to render it more susceptible to the action of the tubercle-bacillus.

Among the morbid conditions of the integumentary system which attended upon the process may be mentioned the critical efflorescence so often observed at the height of the disease, and the desquamation which speedily followed on that inflammatory action. There was also a tendency to chilliness of the skin, and to copious and exhausting sweating, which often persisted for months after the acute symptoms had passed away.

The urinary system was affected in many ways; sometimes there was a mere passing albuminuria, sometimes a formidable hematuria or serious inflammation of the kidneys, and in some epidemics, as in one of those recently described in Egypt, such changes were frequent, and in a considerable number of instances proved fatal by uremia. Some patients exhibited a susceptibility to vesical inflammation. The reproductive system also showed manifest changes in both sexes—the functions became greatly impaired.

But the nervous system suffered most frequently. In every case of influenza during the acute stage disturbance of that system was pronounced, and nervous sequelæ were extremely common, serious, and persistent.

Eye-changes were numerous, inflammation and ulceration of the cornea, conjunctivitis, iritis, glaucoma, asthenopia, optic neuritis, optic atrophy, paralysis of accommodation, dyschromatopsia, blepharospasm, and many more. Diseases of the ears were common, especially otitis. Changes in the sense of smell and taste were observed; sometimes in the way of diminution, sometimes in the way of perversion, and sometimes in the way of exaggeration of function.

The locomotory system also sometimes showed important changes in respect of bones, joints, and muscles.

This list of complications includes morbid processes which arise in a great variety of ways. An etiologic classification of morbid processes may perhaps serve to render this more distinct.

1. *Diseases which owe their Origin to the Invasion of Foreign Organisms, particularly Microörganisms.* Among the maladies which follow influenza there are undoubtedly several belonging to this group, as, for example, tuberculosis and pneumonia.

2. *Diseases due to Faulty Chemic Action within the Body* either in respect of (1) the introduction of toxic substances from without; (2) faulty gastro-intestinal digestion; (3) faulty chemic transformation of the blood and other elements of the body; or, (4) faulty elimination of waste products. This group is well represented among the after-maladies

of influenza, the gastro-intestinal cases affording illustrations of faulty digestion: the anemias, purpura, diabetes, and many cases of gout affording examples of faulty metabolism, while in some instances gout and other maladies may be induced by faulty elimination.

3. *Diseases dependent upon Faulty Mechanical Conditions.* Illustrations of this group may be found in the swellings of the limbs and other changes following upon thrombosis of veins, and in the dropsies and other results of backward pressure following upon dilatation of the heart.

4. *Diseases dependent upon Faulty Innervation.* Of this group there are abundant examples, as in some of the cardiac and gastro-intestinal disorders, in the feverish attacks, and the profuse perspirations.

5. *Diseases dependent upon Morbid Nutrition of the Tissues, either in the way of Inflammation, New-formation, or Degeneration.* Influenza has shown numerous illustrations of the inflammations, as, for example, in the cases of meningitis, pericarditis, pleurisy, neuritis, dermatitis, while the degenerations are illustrated by the fatty changes in the cardiac muscle.

While knowledge of the clinical features of influenza was increased, still greater advances have been made in regard to the essential nature of the influenzal process. The essential cause of this process has been found to be a bacillus presenting distinctive characters in respect of appearance, staining and cultures, and present in the sputum in enormous quantities.

Even to the naked eye influenza-sputum is characteristic enough. It is of a yellow-greenish color, viscid and tough, generally brought up in lumps or balls, and presenting a nummular appearance in the dish. It varies in quantity from a very small amount up to several c.c. in twenty-four hours. In almost every case it is derived from the nose and pharynx, but in those of any severity largely from the bronchial tubes, down to their utmost ramifications, and from the air-cells of the lungs.

The bacilli are, as a rule, present in enormous numbers in the mucus of the respiratory tract. They are to be found also in the mucous membrane, and to some extent in the neighboring tissues. They are met with in the inflamed patches of the lung, along with the ordinary microörganisms of pneumonic processes. They are occasionally found, but in comparatively small numbers, in the blood, and when there they appear to be dead or dying, being no longer capable of cultivation. They may block bloodvessels in patches of inflamed lung, and they have occasionally been found in different parts of the body, as, for example, in the kidney and the liver.

It seems probable that the constitutional symptoms of influenza result indirectly rather than directly, and for several reasons: 1. The bacteria are not found living, active, numerous in the blood and throughout the tissues of the body generally, and therefore cannot be supposed to be operating so widely. 2. The character of the symptoms corresponds to that of those due to such poisoning.

This conclusion as to the general symptoms which occur in all cases of influenza, still more forcibly applies to the complications and the sequelæ.

In the complications and sequelæ due to the action of other microörganisms than the influenza-bacillus, the influenzal process affords a nidus in which germs may readily multiply; it lowers the general power of resistance to microörganisms; in some cases there probably occurs mixed infection; the bacillus of influenza or its products conferring increased activity upon certain other microörganisms with which it happens to be associated.

The morbid processes complicating or following influenza, and in which faulty chemic action is evolved is explained by (1) the general debility; (2) the special depression of the nervous system; (3) the interference with the processes of gastro-intestinal digestion; (4) interference with the chemic changes in the liver, in the blood, perhaps the spleen, and other organs, which interfere with metabolism; (5) defective action of emunctories, whereby waste-products, failing to be removed by the natural channels of elimination, accumulate within the system, and exert a toxic influence; (6) perhaps the chemic products of the influenza-bacillus itself may interfere directly with chemic transformations.

The morbid conditions due to faulty innervation —the cardiac, the gastric, and the bronchial and the intestinal disturbances—are in most cases due to poisoning, without recognizable organic change, but sometimes as a result of definite structural alteration.

The series of inflammatory and degenerative processes, the inflammations of mucous surfaces, of serous membranes, and of solid organs; those of nerves, of nerve-centers, of the membranes of the brain and cord, and the fatty degeneration of the heart, are probably due not to the bacillus but to its products.

By analogy with studies already made upon anthrax and diphtheria the conclusions may be formulated: (1) That the influenza-bacillus, which is not widely disseminated throughout the body, produces its effects by its chemic products. (2) That these chemic products may probably be of the nature of albumoses associated with an organic acid or acids, or with an alkaloid or alkaloids, which may perhaps be produced indirectly by means of a ferment secreted by the bacillus. (3) It is probable that the production of these substances takes place to some extent in the spleen, which is so often found enlarged in cases of influenza. (4) That these poisonous products act upon nervous and other tissues, producing the great variety of functional and structural changes which are met with in the later stages of the influenzal process.

In the way of prophylaxis, many facts have been ascertained which are fitted to suggest and even justify the adoption of preventive measures, although it must be admitted that the application of these measures is by no means easy.

While recent facts have thrown doubt upon the old belief in the atmospheric spread of the disease, evidence of an overwhelming force has accumulated in favor of its spread by contagion.

Epidemics do not always spread with the prevailing winds; they are independent of season and weather, are never known to travel faster than men can travel, never occur among persons so placed as to preclude communication by human agency; as a rule, appear first in each country in the ports of entry or in the frontier-towns, and in the busy capitals which were most active in intercourse with neighboring lands which had become affected; as a rule, country places remain longer free than the busy towns, even although they might be nearer the countries already invaded by the disease; the individual members of the communities who were most in contact with others were first affected; from them it spread to others with whom they were associated; among persons that were wont to congregate in crowded, and especially in ill-ventilated buildings, and where people were closely associated in public institutions, the disease came more speedily to its height and was sooner got over than when men were more secluded from one another.

Another important fact which has been made out is the shortness of the period of incubation. Sometimes the symptoms appeared almost immediately after exposure. A consideration of the brevity of the period of incubation makes clear the rapidity of the epidemic spread.

As the great majority of people are susceptible to the action of the influenzal poison, and as one attack confers no immunity to another, and as the disease often spreads from cases which are not severe and appear trifling and unimportant, its return in a community, even by contagion, ultimately surpasses what anyone could expect.

But the spread is not exclusively by direct intercourse between the sick and the sound; it is often by means of fomites. Post office and railway officials were specially apt to suffer early, and from them as centers the disease sometimes spread through the community, and these facts afford instances of the tendency the disease had to spread by letters and by parcels.

Outside the body of the healthy person the influenza-bacilli might be prevented from producing its effects, if those who have become affected with the disease could be effectively isolated. Every sneeze, and every cough probably, scatters the germs throughout the atmosphere, and if those who are affected could only be isolated the danger would greatly diminish; but isolation in a general way is impossible, and that because many cases of true influenza are so mild as to escape detection, and because even when the case is severe, infection is often spread before diagnosis is possible. But, on the other hand, now that people have ceased to regard influenza as a trifling and unimportant malady, and have come to know that it is certainly contagious, precautions have often been taken that were scarcely dreamed of in former epidemics. Infected individuals have isolated themselves, and thereby have saved their neighbors from contamination. People suffering from disease of the heart or lungs have been kept scrupulously away from the infected, and have thereby escaped what would have been to them a terrible danger. Schools have been closed, with the result of diminishing the severity of certain outbreaks, and no doubt when the next epidemic of influenza occurs, precautions of this kind will much more generally be adopted.

But even when isolation is impossible much good may be done by destruction of the sputum and of the nasal secretion. If patients expectorate into vessels containing sufficient disinfecting fluid, or into pieces of linen which are immediately thrown into the fire, innumerable quantities of noxious germs may be destroyed in each case. So, precautions as to the discharges, if once efficiently taken, would tell materially upon the epidemics.

If the bacilli discharged from the body can be thus dealt with, the question arises whether they cannot be dealt with within the bronchial tubes. If this were possible their multiplication and the development of their toxins might be prevented, and the noxious power of the sputum greatly diminished. Inhalations of many antiseptics have been recommended for this purpose; eucalyptus and menthol have been, perhaps, among the most popular. The injections into the trachea of such substances as have proved serviceable in other diseases of the respiratory tract might be tried, such as a 10 per cent. solution of menthol in olive-oil, with or without 2 per cent. of guaiacol superadded.

It is possible that during epidemics of influenza such intra-tracheal injections might confer a degree of immunity upon those exposed to the contagion.

Another question which emerges is whether any means may be discovered of conferring immunity by rendering individuals insusceptible to the action of the germs. Now the mere fact that one attack of the disease confers no immunity to subsequent attacks makes one less sanguine as to the probability of such a material being discovered, but it may, perhaps, one day be possible to supply a preventive treatment by the use of the derivatives of the specific bacillus.

Again, it would be of great service if substances were discovered by means of which the poisonous products of the bacilli would be destroyed or neutralized, and so prevent the secondary results. It is also conceivable that substances may be discovered which would act as physiologic antagonists to the influenza-toxins; but this also is in the meantime mere matter of conjecture.

The last question to be raised is whether the system generally or the organs specially affected can be so acted upon as to combat the injurious effects. There is one lesson which most people have learned from the recent epidemics, namely, that those who are taken with the disease, even in a mild form, ought not to struggle against it and go on with their work, but should yield to the malady for the time, in the hope of escaping or lessening its after-effects. When the after-effects manifest themselves, rest from bodily and mental effort is essential, and careful attention to diet, to protection from cold, to the moderate and wise use of stimulants by those who are accustomed to employ them, and of such tonics as nux vomica, quinin, arsenic, and iron, with special cardiac or other tonics when they are indicated, prove eminently beneficial.

Third Day—August 2d.

The Address in Surgery was delivered by Mr. J. Greig Smith, of Bristol, taking for his subject "The Art of the Surgeon." He pointed out that not only has the surgeon knowledge to acquire but also an art to learn. The art may be of little importance as compared with the science of surgery; there can be no dispute that it is; still, as the servant, the interpreter, occasionally even the improver of the science, it has its importance, and may be worth thinking about and worth discussing.

What is a Surgeon?

The surgeon is, first and foremost, a physician, a man trained in the laws of health and disease, in the ways of preserving health and of curing disease. In person or by proxy he must lean finally on medicine. To his medical training is superadded a special and peculiar education in the treatment of certain diseases which lend themselves to cure by the help of handicraft. The surgeon is a man who can carry the treatment of a class—a small class—of diseases farther than the physician, and that is all. The physician, on his side, goes beyond the surgeon. But both meet. In old times the surgeon was practically the slave of the physician; later on he struggled up to the dignity of being his enemy. To-day he is his equal and his helper. They join hands over the same patient, each seeking from the other some special help in healing. And herein to-day is the difficulty both of the surgeon and of the physician. Each is driven to his wits' end to meet the manifold demands made on him by the other. This is their only rivalry, a goodly and a wholesome one, leading to new victories over disease.

Amongst other arts and crafts the surgical stands alone in extraordinary breadth of its foundation on science. The painter is not expected to know the sciences of chemistry, botany, geometry, and optics, which intimately relate to his art; nor is the sculptor supposed to be familiar with geology because he works in clay and marble. Possibly both painter and sculptor would be the better for a scientific knowledge of their materials; but such knowledge is subsidiary and unessential. To the surgeon wide scientific knowledge is of prime importance; it is, indeed, essential. His range is almost coterminous with abstract science—something of all of the sciences, a good deal of a few, and everything of two or three, he must know.

Those who arrange the medical curriculum go on adding to it; where is this importation of new subjects going to stop? They go on broadening the base, and adding to the foundation; might not now some thought be given to the raising of the building?

The rolling years add to the pile of knowledge, and the burden becomes heavier to bear. To some the burden is already too heavy; others carry it easily, and even voluntarily add new weight. How to deal with the pile so that it may best minister to good is a problem always seeking solution.

Some would solve it by deliberately casting off part of the burden as being cumbersome and useless. These men say of anatomy that there is too much of it. If surgeons, they say they cut where they have to cut, and if they divide a vessel they tie it. The right kidney they find in the right loin, and the left kidney in the left loin, and they cut down till they come on it. If facts must be borne in mind till examination, there are mnemonic rhymes and cabalistic formulæ to save the labor of the brain. There is, they say, too much anatomy. They say of physiology that it is unstable and uncertain, that it is burdened with an affectation of science called by its young votaries "research;" and they affirm that the young physiologist when he becomes a physician administers a dose of castor-oil to his patient on very much the same principles as his grandmother followed when she gave a dose of the same drug to his father. Pathology also they despise. They call this the science of the "too late;" it helps us when the power of helping the patient is past. From the disintegrated remnants of the deadhouse they say one can no more work back to the beginnings of disease than from the shattered fragments of a fortification the artilleryman can work back to the powder and shot and ordnance which created the havoc.

These men are not few, and they are as honest as their opponents. Mr. Smith, with firm belief, proclaimed the very opposite. If asked of surgery "Are we to lower it so that brains may not be strained; or are we to strain our brains that surgery be raised?" he would answer unhesitatingly, "Let surgery rise if brains fall." Let the weak, or the lazy, or the impatient fall out, but do not let us lower our standard because some men cry that it is too high. It cannot be too high; it can never be high enough. The claims of surgery are such that no test of excellence can be too high for those who seek to qualify themselves for its practice.

Mr. Smith would not favor casting anything away; but he would select, rearrange, and raise. He would gladly see zoölogy, and chemistry, and botany turned out of the curriculum, and placed among the preliminary studies and made part of the preliminary examination. He should like to fill their places in the curriculum with more anatomy and more physiology and more pathology. He would extend and raise education in these branches simply and solely because he firmly believed that the fullest knowledge of them goes to provide the best practice of surgical art.

In the persistent and overwhelming claims of its science, there is real danger that surgery may lose something of its art. The art of the surgeon may, for purposes of comparison, be viewed from two aspects. One is allied to the art of workers in wood and iron, and may be called mechanical. The other aspect has little of the mechanical about it, and is closely allied to a fine art. The mechanical side, the art of the application of tools, is an important but comparatively simple one. Easily learned as it is, it is still worthy of being taught. It is not, perhaps, a good thing that a surgeon should for the first time handle a saw or a chisel, or a drill, or a trephine on a living human bone; and it would be well if surgeons who have much to do with apparatus knew the qualities of the metals and other materials they

employ, and the ways of jointing, and welding, and moulding them to meet the ends desired. It would, in fact, be good for most surgeons to spend a month or two in a mechanic's shop under the severe discipline of a skilled workman. In respect of technical skill in their handling, the surgeon's tools may be placed on the level of the sculptor's spatula or chisel, or only a little higher. The chisel of the sculptor and the knife of the surgeon are mere incidents or accessories in the work to be compassed by the brain-compelled hands. Still, as accessories they have their importance; the surgeon ought to be familiar with his tools. But the surgeon is more than a mechanic; he has work to do which brings him to the level of the true artist.

The other side of surgical craft may be compared with that which produces what are known as works of art; and this side is by far the most important. Here the work of the fingers is of small moment as compared with the work of the brain. The brain is supreme, and yet in delicacy, deftness, and general preciseness of obedience to the brain's behests, the fingers and hands have great calls made on them. In painting, sculpture, or music, mere manual dexterity rarely is deficient to him who has the artistic soul; or, if there is deficiency, practice and education will do much to remove it. So in surgery, the hands rarely fail to rise to the demand the brain makes upon them if they are trained.

The highest part of the surgical art is more than handicraft; it is braincraft uttered through the fingers. It is not mere manual dexterity or cunning. In fact, mere manual cunning, being a result of routine practice which begets reflex movements, is detrimental to surgical art, which demands the widest possible scope and variety of action. The surgeon's art demands breadth and variety in manual training; the hands must have all-round capacity. By many devices and practisings he may and ought to improve their capacity; but their final and most perfect training is in the actual work.

The skill of the hand depends greatly on the sense of touch and on what has been called the muscular sense. The highest cultivation of the sense is essential to the surgeon.

The sense of touch is trained through the intellect as much as through the fingers; it is helped by comparative appeals to the other senses, and especially to sight.

There are no limits to the demands made on the surgeon's tactile powers. Touch is to the surgeon what hearing is to the physician in diagnosis, and more in treatment. In diagnosis touch tells what sight cannot; in operating in the dark depths of the body it goes where sight cannot, and sometimes it guides more truly than sight could. But always it is the intellect that interprets.

Amongst the plastic arts sculpture, perhaps, presents most points for comparison with the surgical. Each deals with the human body. The sculptor has to know the body externally in architecture, in bulk, and in outline; the surgeon has to know it in the same ways, internally as well as externally, and in sections vertical, transverse, and oblique as well. Each art demands from its votaries absolute fidelity to form; the ignorance that misplaces a tendon in a statue will lead to grief on an artery in an operation. There are similarities in their ways of working, too. The inferior sculptor, by adding here and subtracting there, by measuring and squeezing and scraping, may, after long working, make a tolerable likeness, but never a work of the highest art. The true artist goes straight to the stopping-point and then stops. What this stopping-point shall be cannot be defined, but it gives that sense of true balance between detail and mass which signifies artistic proportion. So in surgery; the surgeon-artist forms a clear conception of the work he has to do and makes straight for the ending of it. Between detail and bulk he determinedly keeps a true artistic proportion. His time is limited, and into this time he must put his best work. He wastes no time over trifles; he is very deliberate over difficulties. The most elaborate finish in both arts is visible when the technical difficulties are greatest. The clean straight strokes of a true artist are visible equally in the work of the surgeon and the sculptor.

The surgeon who is not an artist is devoid of a sense of true proportion. Where one bold cut is wanted, he will make a dainty nibbling dissection. He verifies his anatomy on the way to his work by the help of the director. He goes a little in this direction and retraces his steps; then a little in that direction and returns. He has hobbies, and he rides one or two well. One man turns the peritoneum in, the other turns it out, a third is careful to ignore it. Perhaps he gives one suture to peritoneum, one to muscle, one to fascia, and one to skin, and each suture is perhaps of a different color or a different material, so that Nature may have no chance of making a mistake. His work is not toward one finished work of art, but to the making of half a dozen clever separate studies. Like the sculptor who is good at hair, and works out every one, or the painter who is good at eyes and puts in the dots in the iris, each sacrificing the whole to the part, the inartistic surgeon lingers over his fancies, and so fails to produce finished and harmonious work. His details are not all equally balanced; some are exquisite, some are mediocre, others are bad. The whole work, the whole operation, will not be the best possible for the saving of life; it is not all round a finished work of art. Therefore it is to be condemned.

The surgeon's art has in it not only the elements of boldness, honesty, and simplicity pertaining to the sculptor's art; it leads him in some of its departments into methods of working which may fairly compare with the most delicate amongst artistic pursuits. The finest work of the surgeon makes demands on the delicacy of the fingers little, if anything, less exacting than the demands made on the fingers of the etcher or the line-engraver. The surgeon, as a painter, has to make pictures not only in life size, but in miniature; as a sculptor he has to do not only the full figure and the medallion; his work may also be compared to that of the graver of gems.

The operative art of surgery is truly a high art;

the demands it makes on the hand, the eye, and the brain of the artist are the same for surgery and the fine arts. Surgery and fine art may indeed well be practised by the same man.

Now, of this art of surgery, where and what is the teaching? Where and who are the masters who guide and correct the young artists in their work? It may be said at once, of masters there are plenty, but they do not teach. There is no real teaching of the art of surgery in Great Britain. Here and there a favored few, house-surgeons and their assistants, are permitted to pick up what knowledge they can by looking on and by helping, but of personal guidance in the actual work on the living subject analogous to the guidance given in other arts, surgeons in theirs know nothing. They have to teach themselves by experience alone. Think what this would mean in art-training. It would mean that to paint a thousand portraits is the only way to become a first-rate portrait-painter; to model a thousand figures is to become a perfect sculptor. It means in medicine that the midwife of 5000 experiences is more to be trusted than the obstetric gold-medalist of London University, who can boast of only fifty. And note this further, the young sculptor may with impunity make and break figures to his heart's content; the young surgeon, in learning his art, is not supposed to damage or destroy human beings.

Artists, mechanics, craftsmen of all sorts, learn their work in the workshops or studios with a master to correct their faults and guide their efforts. Surgeons alone have, unassisted, to grope their way to excellence in their art. In his science the student has guidance enough in all conscience, and in his notetaking and his dressing he is sharply looked after. But he is severely left to his own devices to pick up the technics of his craft.

Is this right? That the art of surgery is teachable there can be no dispute, that it is worth teaching is still less disputable. Why, then, is it not taught?

The art can be taught in only one way, the way of teaching all the plastic arts. The young artist must while beginning the practice of his art have a master at his elbow, a master who will criticise his methods and correct them, who will guide him in the use of his hand, his eye, and his instruments, who will in the fullest sense make him his pupil and personally lead him on, step by step, toward such excellence in the art as he himself has acquired.

As a step between anatomy and surgery, the performance of operations on the dead body is of supreme value; it is indeed indispensable. It is the first step toward operative surgery, but it is not operating. For instruction in the living art of surgery, attendance in the operating-theater is of little value. The student sees little, and that little with uninstructed eyes. The student of surgery is just as likely to learn his art simply by attendance in the operating-theater as is the student of the violin to become a true artist simply by going to concerts. In both cases to learn the art the student must work at it; to attain to the highest degree of excellence he must work under a master.

If then the art of surgery is to be perfectly taught, it must be taught to the young surgeon actually operating. And here is the first difficulty. We cannot teach the art to unqualified men; students are not permitted to operate. The teaching must be begun after the student is qualified. As things are at present this is not easy. The pupil of yesterday is a colleague of to-day; when qualified he is supposed to be the equal of his teachers, and therefore above their criticism. It is difficult to imagine a skilled senior in the operating-theater calling attention to the faulty methods of his young colleague; it is impossible to conceive the former pushing the latter aside and showing him how to do it. And yet, if the living art is to be taught at all, this personal way is the only way. Why should the young surgeon more than any other artist fear tuition in the operating-theater? Possibly the presence of young students, of whom he is probably a teacher, would be a chief objection. Then, if the humility of him who truly seeks after knowledge is not forthcoming, must the young students be excluded from operations at which open instruction is given to young surgeons. And it resolves itself into this, that the master has a few qualified pupils, and is present at the operations of these few. He guides them in their work; he points out faulty methods; he advises, and, perhaps, assists; and this he does in the presence of all his pupils.

As a matter of fact, it is doubtful if the young surgeon would fear tuition in public, if such tuition were given honestly and courteously by a man whom he could look up to as a master. There is no method of education in handiwork that can surpass fair criticism of the work before compeers. The mere pointing out of faults calls attention to details which the average onlooker would fail to see. But criticism is not all fault-finding; it calls attention to excellences as well as defects. The pointing out and correcting of faults, and the praising and holding up for imitation of any special excellence in operating might well, to the advantage of all and the discomfort of a very few, form part of the routine education of the hospital operating-theater.

NEWS ITEMS.

The Vermont State Medical Society will hold its eighty-first annual meeting at Montpelier, October 11 and 12, 1894. An interesting program is in course of preparation.

"*The Nursing World*" is the name of a new "monthly journal devoted to the theory and practice of modern nursing," published at Providence, R. I., and edited by Dr. J. E. Brown.

The Cholera.—Thirteen cases of cholera, with six deaths, were reported in Maastricht in Holland, up to July 3d.

"*Health*" is the name of a new publication, which announces itself as a journal of practical hygiene.

Dr. Rudolph Matas has been elected President of the Louisiana State Medical Society.

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ORIGINAL ARTICLES.

ATONY OF THE INTESTINE.[1]

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IN an article on "Atony of the Stomach,"[2] published recently in THE MEDICAL NEWS, I pointed out the great confusion still existing concerning this condition. The same is true to a still greater degree in regard to atony of the large intestine.

Atony of the intestine is usually placed under the general heading of constipation, and scarcely any attempt is made to distinguish the various disorders of which this is merely a symptom. Thus Leichtenstern,[3] in Von Ziemssen's *Cyclopedia*, treats of intestinal atony under the general head of habitual constipation, and does not suggest any method by which this form of constipation may be differentiated.

Henoch[4] considers atony of the intestine one of the most frequent causes of constipation. He devotes considerable space to the treatment of the disorder.

Leube[5] places atony of the intestine among the nervous intestinal disorders, and maintains that the resulting constipation is due to a lack of innervation.

Fleiner[6] divides constipation into two general classes, the spastic and atonic forms. In the first form spastic contractions in various parts of the intestines cause the feces to be divided, and thus retained, while in the second form there is a general weakening of the muscles of the intestinal walls, with a similar result.

Rosenheim[7] places atony of the bowel among the intestinal neuroses, and believes that in many cases it is due to diminished peristaltic action resulting from deficient innervation, while in other cases it is due to primary weakening of the muscular walls.

Atony of the intestine may be described as that condition in which the walls of the colon have lost their tonicity, and are thus unable to expel the feces at the normal rate. Atony may be primary or secondary. It is *primary* in persons that have accustomed themselves to a diet that does not leave sufficient residue to stimulate intestinal peristalsis, or in whom the opposite condition has been produced by the excessive ingestion of too irritating food.

While the ingestion of excessive quantities of fluid leads to atony of the stomach, a certain quantity of fluid is requisite to aid in softening the hardened fecal masses in the intestine. A diet, therefore, consisting almost entirely of solid food, and containing but little fluid, is likely to produce primary atony of the intestine. Improper hygienic conditions may also lead to the production of the disorder. That those who are subject to sedentary habits and insufficient exercise are prone to become habitually constipated has long been known. The same is true of those who habitually neglect to attend to the calls of nature. Yet it is remarkable that many persons of the most sedentary habits may remain unaffected, while others who indulge in regular exercise suffer with chronic constipation (Henoch).[1]

Not an unimportant part in the production of intestinal atony is the too frequent use of cathartics (Rosenheim),[2] which act more or less as irritants to the bowel and after a time leave it in a weakened condition.

Atony of the intestine may be *secondary* to many other disorders, such as obesity, anemia, and diseases of the heart, lungs, or liver, causing derangement of the circulation. It may also be secondary to diseases of the brain and spinal cord. Hysteria and neurasthenia, according to Dunin,[3] predispose to the disorder.

Atony of the intestine is frequently a sequel of typhoid fever, dysentery, and cholera. It is often due to other diseases of the gastro-intestinal tract,

[1] Read at the annual meeting of the Medical and Chirurgical Faculty of Maryland, April 26, 1894.

[2] "Atony of the Stomach," THE MEDICAL NEWS, December 23, 1893.

[3] Leichtenstern: Von Ziemssen's Cylopedia, American edition, vol. vii, p. 583.

[4] Henoch: Klinik der Unterleibs-krankheiten, 3te Auflage, Berlin, 1863, pp. 480–503.

[5] Leube: Specielle Diagnose der Inneren Krankheiten, Leipzig, 1891, 3te Auflage, p. 298.

[6] Fleiner: "Ueber die Behandlung der Constipation, etc.," Berliner klinische Wochenschrift, 1893, No. 3, p. 60.

[7] Rosenheim: Krankheiten des Darms, Wien, 1893, p. 495.

[1] Henoch: Loc. cit., p. 483.

[2] Rosenheim: Loc. cit., p. 498.

[3] Dunin: "Ueber habituelle Stuhlverstopfung, deren Ursachen und Behandlung," Berliner Klinik, 1891, Heft 34.

such as carcinoma of the stomach, chronic gastritis, gastroptosis, intestinal catarrh, enteroptosis, and nervous dyspepsia. According to Peyer,[1] it is not infrequently found as a neurosis secondary to disorders of the male generative organs. The relaxation of the abdominal walls after frequent pregnancies likewise leads to this condition.

Atony of the intestine is frequently found in earliest childhood, and is at times congenital (Henoch[2]). In these cases it may become so marked as to produce actual dilatation. Such a case is reported by Fuetterer and Middeldorpf.[3] The sigmoid flexure of the colon was so dilated as to have a capacity of sixteen liters, and when filled occupied the entire abdominal cavity.

The disorder occurs as frequently in males as in females. The aged, in whom there is a general atonic condition of all organs, are especially subject to it.

The symptom of which patients suffering with intestinal atony complain is marked constipation. This is frequently the only symptom. At times it does not produce much annoyance. Cases have been recorded in which fecal evacuations have occurred at intervals of eight, twelve, or more days without causing any inconvenience. Thus, Henoch[4] reports the case of a woman, sixty years old, who from her earliest years had evacuated her bowels but once every six or eight days, and whose health was in all other respects very good; and Chambers[5] tells of an extraordinarily large and solid colon in a woman who, while in otherwise perfect health, had a movement of the bowel only once every fortnight.

However, the constipation usually becomes very annoying and produces great discomfort. The abdomen frequently becomes distended, giving rise to a feeling of fulness, while the formation of gas causes colicky pains and a desire to discharge flatus. Other symptoms present are headache of a dull character, which may lead to vertigo; loss of appetite; nausea and pressure after eating; pains in the back and loins.

Nervous symptoms are frequently present, such as palpitation of the heart (Kisch[6]), indefinite pains, abnormal sensations of heat and cold, flushes of heat, and sleeplessness. It was at one time claimed that these symptoms are produced by the absorption of toxic materials from the intestine; but Bouchard[7] has shown that fluid feces, being more easily absorbable, are more likely to produce toxic symptoms than hard fecal masses. Katz[1] has recently attempted to prove that auto-intoxication never exists, but that the symptoms occasioned are due purely to reflex nervous changes.

On examination the abdomen is found distended with gas, so that a marked tympanitic sound is elicited on percussion. If the abdominal walls are thin, the configuration of the distended colon may be made out with ease. Usually the abdomen is equally distended, but in cases of partial atony of the intestine the distention is asymmetrical. Large fecal masses can frequently be felt in the region of the sigmoid flexure and descending colon, while the abdomen is sensitive to pressure. The examination of the feces is important in these cases. The fecal masses are usually darker, drier, and harder than normal, and usually consist of large, adherent clumps or cylinders of large caliber.

At times valuable information concerning the condition of the colon can be gained by distending this part with gas. This is best accomplished by the introduction of air into the colon through a soft-rubber tube by means of the bulb of an ordinary spray-apparatus (Runeberg[2]). Under normal conditions the distended part will be found above or in the region of the umbilicus, representing the transverse colon, with the ascending and descending colon on either side. In dislocation of the colon downward, which is a frequent cause of atony of the intestine, the transverse colon is found below its ordinary position, reaching at times as far down as the symphysis pubis, while the ascending and descending colon approach nearer the median line. The colon may not only be dislocated, but it is frequently also considerably enlarged in its transverse diameter.

Of greater importance in the determination of atony of the intestine, as well as of the position of the colon, is a method that has recently been devised by Boas.[3] After the bowels have been moved, warm water is introduced into the colon through a Hegar funnel. Under normal conditions a splashing-sound will not be produced before the bowels contain from 500 to 600 c.c. of water. This splashing-sound is induced by quick movements of the fingers upon the abdomen within an area bounded by a line a hand's-breadth above the umbilicus and another passing through the umbilicus. Under these

[1] Peyer: "Die Nervösen Affectionen des Darms," Wiener Klinik, 1893, p. 14.

[2] Henoch: Vorlesungen über Kinderkrankheiten. Berlin 1892, p. 518.

[3] Fuetterer u. Middeldorpf: Virchow's Archiv, Bd. cvi.

[4] Henoch: Klinik der Unterleibskrankheiten, p. 479.

[5] Chambers: Digestion and its Derangements. London, 1856, p. 496.

[6] Kisch: Berliner klinische Wochenschrift, 1887.

[7] Bouchard: Leçons sur les Auto-intoxications. Paris, 1887.

[1] Katz: "Zur Lehre der Autointoxicationen bei chronischen Magen- und Darmkrankheiten," Wiener med. Presse, 1893, No 23.

[2] W. Runeberg: "Ueber künstliche Aufblähung des Magens und des Dickdarms," Deutsches Archiv f. klin. Med., Bd. xxxiv, S. 460.

[3] Boas: Specielle Diagnostik und Therapie der Magenkrankheiten, Theil II. Leipzig, 1893, p. 89.

Table I.—Normal Cases.

Case.	Name.	Sex.	Age.	Quantity of fluid necessary to obtain splashing-sound.	Whether succussion-sound could be heard or not.	Position of transverse colon.		Greatest diameter of transverse colon.
						Upper border.	Lower border.	
1	J. S.	M.	25	600 c.c.	No	6 cm. above umbilicus	At umbilicus	6 cm.
2	P. T.	M.	31	550	No	6.5 " "	" "	6.5
3	S. P.	M.	39	700	No	7 " "	1 cm. above umbilicus	6
4	L. M.	M.	45	500	No	7.5 " "	0.5 " "	7
5	M. A.	M.	62	550	No	6 " "	At umbilicus	6
6	J. M.	M.	60	500	Very slight	7 " "	1.5 cm. above umbilicus	5.5
7	J. H.	M.	54	600	No	6.5 " "	At umbilicus	6.5
8	J. M.	M.	68	550	No	6.5 " "	0.5 cm. below umbilicus	7
9	T. M.	M.	65	600	No	6 5 " "	At umbilicus	6 5
10	F. J.	M.	42	750	No	7 " "	" "	7
11	L. C.	F.	35	650	No	6 " "	1 cm. below umbilicus	7
12	T. B.	M.	27	750	No	6 " "	0.5 cm. above umbilicus	5 5
13	M. R.	M.	44	600	No	7 " "	1 " "	6
14	E. B.	F.	26	550	Slight	7 " "	2 " "	5
15	D. C.	M.	38	600	No	6.5 " "	At umbilicus	6.5
16	F. G.	M.	62	700	No	7 " "	" "	7
17	N. C.	M.	70	650	No	7 " "	0.5 cm. above umbilicus	6.5
18	M. M.	F.	41	750	No	7 " "	0.5 " "	6 5
19	L. D.	F.	37	700	No	6.5 " "	At umbilicus	6.5
20	T. B.	M.	24	600	No	5 " "	" "	5
21	E. M.	M.	80	500	No	6 " "	" "	6
22	J. M.	M.	27	550	No	5 " "	1 cm. below umbilicus	6
23	P. C.	M.	25	500	Not noted	6 " "	At umbilicus	6
24	E. M.	M.	42	600	Not noted	6 " "	" "	6
25	H. D.	M.	41	500	No	5 " "	" "	5
26	W. S.	M.	53	450	Very slight	3.5 " "	" "	3 5
27	T. B.	M.	44	500	Very slight	5.5 " "	" "	5.5
28	F. H.	M.	60	500	No	6 " "	" "	6
29	W. D.	M.	21	450	No	5 " "	" "	5
30	P. F.	M.	35	500	No	5.5 " "	" "	5.5
31	J. T.	M.	47	600	No	5 " "	" "	5
32	J. G.	M.	38	750	No	5.5 " "	" "	5.5
33	M. M.	M.	35	500	Very slight	6 " "	1 cm. above umbilicus	5
34	G. H.	M.	57	800	No	7 " "	0.5 cm. below umbilicus	6 5
35	F. H.	M.	21	600	Not noted	7 " "	At umbilicus	7
36	W. N.	M.	50	700	Very slight	7 " "	1 cm. below umbilicus	6
37	W. M.	M.	59	650	No	7.5 " "	1 cm. above umbilicus	6.5
38	G. S.	M.	67	800	Not noted	6.5 " "	0.5 " "	5
39	T. T.	M.	19	500	Very slight	5.5 " "	At umbilicus	5.5
40	F. K.	M.	45	550	No	5 " "	" "	5

Table II.—Cases of Atony.

Case.	Name.	Sex	Age.	Quantity of fluid necessary to obtain splashing-sound.	Whether succussion-sound could be heard or not.	Position of transverse colon.		Greatest diameter of transverse colon.
						Upper border.	Lower border.	
1	H. C.	M.	24	200 c.c.	Marked	At umbilicus	6 cm. below umbilicus	6 cm.
2	W. S.	M.	31	150	Marked	1 cm. above umbilicus	6 " "	7
3	J. T.	M.	68	200	Slight	At umbilicus	5.5 " "	5.5
4	J. L.	M.	47	100	Marked	" "	7.5 " "	7 5
5	F. R.	M.	27	100	Marked	1 cm. above umbilicus	7 " "	8
6	T. L.	F.	28	250	Slight	2 " "	3.5 " "	5.5
7	J. O.	M.	36	300	Slight	3 " "	4 " "	7
8	T. K.	F.	54	400	Slight	5 " "	3 " "	8
9	H. R.	M.	50	150	Marked	At umbilicus	6 5 " "	6.5
10	M. F.	M.	69	350	Marked	4 cm. above umbilicus	4.5 " "	8
11	G. S.	M.	37	100	Marked	5.5 " "	3 " "	8.5
12	F. A.	F.	71	250	Marked	At umbilicus	8 " "	8
13	M. D.	F.	43	150	Marked	5 cm. above umbilicus	3 " "	6.5
14	K. J.	M.	35	300	Marked	5 5 " "	2 " "	7 5
15	G. S.	M.	37	250	Marked	4 " "	4 " "	8
16	G. H.	M.	22	450	Slight	3 " "	4 " "	7
17	M. G.	M.	29	150	Marked	3 cm. below umbilicus	10.5 " "	7.5
18	W. K.	M.	19	100	Marked	4 " "	10 " "	6
19	T. J.	M.	32	150	Marked	2.5 cm. above umbilicus	5 " "	7.5
20	F. M.	M.	68	100	Marked	2 cm. below umbilicus	11 " "	9.5

conditions the colon can also be mapped out by palpation and percussion. A succussion-sound produced by quick movements of the patient himself can only be made out with difficulty or not at all.

Under pathologic conditions the succussion-sound and the splashing-sound can be generated with but small quantities of water (200–300 c c.), and may reach much lower, at times to the symphysis pubis (*e. g.*, in dislocation of the colon). This method not only shows the position of the large intestine, but also indicates an atonic condition of the colon. As Boas states, this method presupposes that no other abdominal organ, and especially the stomach, can give rise to the splashing-sound. In cases in which the stomach is the source of the sound, as in atony, either the viscus must be emptied by means of a stomach-tube, or the examination must be made in the morning, when the stomach is in a fasting condition. Inasmuch as Boas' statements concerning this method have not received corroboration, I have tested it, and the following embodies the results of my investigation.

Forty perfectly normal persons were examined. In all cases the position of the colon, as thus determined, was verified by insufflation of the bowel with air. The results obtained agree in all respects with the observations of Boas. Under normal conditions from 500 c.c. to 800 c.c. of fluid are needed to obtain the splashing-sound, while a very slight succussion-sound or none at all can be obtained. The lower border of the transverse colon under normal conditions lies at the level of or slightly above the umbilicus, and the upper border from 4 to 7 cm. above this point, the diameter of the transverse colon being from 5 to 7 cm.

In twenty cases of atony of the colon, with marked constipation, the bowels were examined in a similar manner. The results were very striking. In no case was more than 450 c.c. of fluid required to produce the splashing-sound. The succussion-sound was obtained in all cases, and was usually very marked. The lower border of the transverse colon was found below the umbilicus in all cases, at times (in cases of marked enteroptosis) ten or eleven centimeters below, while the upper border was frequently below the normal level. The diameter of the transverse colon was usually between six and nine centimeters. The upper parts of the ascending and descending colon approached the umbilicus in proportion to the degree of enteroptosis. We have thus a simple method of detecting atony, as well as variations in position of the large intestine.

The whole colon is not always equally atonic. We frequently find atony of only the descending colon and of the rectum. This also results in fecal accumulations and marked constipation.

The symptoms of atony of the colon are well illustrated by the following case:

Case XIV, Table II.—K. J., a servant, thirty-five years of age, had complained of marked constipation for the past twenty years. With this exception he has always been well. During the last three years the constipation has been so marked that frequently five or six days pass without a movement of the bowels. Cathartics of many kinds have been constantly employed, and even with these there is but a scant movement. There is a feeling of heaviness and distention of the abdomen. Flatulency and frequent pains from the presence of gas are complained of; at times the pains become colicky. Added to the constipation there is headache, which is usually relieved when the bowels have been opened. The appetite is good. There is frequent palpitation of the heart and general nervousness.

The patient is a well-built man, with a good pulse, and normal heart and lungs. The liver is normal in size; the abdomen is not tender to pressure; the kidneys are not palpable. The abdomen is markedly distended and tympanitic. The functions of the stomach are normal. One hour after an Ewald test-breakfast, small quantities of well-digested gastric contents are obtained, with an acidity of 64; the free hydrochloric acid equals 0.187 per cent. No lactic acid is present. The salol-test shows the motor function of the stomach to be normal. After injecting 300 c.c. of water into the bowel, a marked splashing sound is produced in the region of the ascending, transverse, and descending colon, by gentle shocks with the fingers upon the abdomen. The upper border of the transvere colon is 5.5 cm. above the umbilicus in the median line, the lower border 2 cm. below; the transverse diameter is 7.5 cm. The succussion-sound produced by movements of the patient himself is very marked. The position of the colon as determined by this method is verified by the inflation with air. The stools are larger and darker than normal, but are well formed.

Among the most frequent complications of atony of the intestine may be mentioned enteroptosis (dislocation of the bowel). As is shown in Table II, most of the cases of atony are complicated by this disorder. It is probable that the atony is secondary to the enteroptosis. Another frequent complication is atony of the stomach. It is probable that more than half the cases of atony of the intestine are associated with gastric atony. Of the twenty cases contained in Table II, fourteen were thus complicated.

Case IX well illustrates this association of enteroptosis, gastroptosis, and atony of the stomach as a complication of atony of the intestine.

H. R., fifty years old, a laborer, had malaria and typhoid fever before his twenty-fifth year, but thereafter was in good health until ten years, ago, when he began to complain of gastric and intestinal disturbances. He has had loss of appetite, nausea, a sense of pressure after eating, especially

after the ingestion of fluids, and marked constipation. The disorder has recently progressed in severity, and the constipation has markedly increased, notwithstanding the constant use of cathartics.

The patient is a poorly-nourished man, with pale mucous membranes; his pulse is weak, his tongue coated; the heart and lungs are normal, the liver and spleen not enlarged. The abdomen is tender at several points on the linea alba, especially in the region of the umbilicus. After swallowing but 150 c.c. of water a splashing sound can be produced in the region of the stomach, the greater curvature being 4.5 c.m. below the umbilicus, the upper curvature 8 c.m. above the umbilicus. On inflating the stomach with air, the same boundaries are determined. One hour after an Ewald test-breakfast large quantities of gastric contents are obtained, with an acidity of 62; HCl equals 0.1279 per cent.; no lactic acid is found. While the stomach is quite empty 150 c.c. of water are gradually allowed to run into the bowels; a marked splashing-sound can be elicited in the region of the ascending, transverse, and descending colon, while a marked succussion-sound is also to be heard on quick movements of the patient himself. The upper border of the transverse colon is at the level of the umbilicus in the median line, while the lower border is 6.5 cm. below the umbilicus, the diameter of the colon in the median line being 6.5 cm. The same result was obtained when the colon was inflated with air. The stools are hard and black, the urine normal, containing neither sugar nor albumin.

Another complication found associated with atony of the colon, though less frequently observed, is the condition of membranous enteritis.

Boas[1] has reported such a case, and I have had a similar case under observation for some time.

Case XVII, Table II.—M. G., a mechanic, twenty-nine years old, has complained of marked constipation for many years, and has for the past ten years been required to take purgatives to move his bowels. The stools are always hard and contain mucus, and very frequently during the past year long membranous masses have been cast off, when severe colicky pains are experienced. The patient also complains of loss of appetite, gaseous distention of the abdomen, and great nervousness. The man is rather well built, with normal heart and lungs. The liver and spleen are not enlarged. The right kidney is dislocated to the second degree. Points of tenderness are irregularly noted over the abdomen. By the usual method the stomach and intestines are found dislocated downward and atonic. With but 150 c.c. of water in the bowels marked splashing-sounds and succussion-sounds are produced. The upper border of the transverse colon in the median line is found 3 cm. below the umbilicus, and the lower border 10.5 cm. below, the diameter of the colon in the median line being 7.5 cm. This position of the colon was afterward verified by the inflation of the intestine with air. In the washing large membranous masses were obtained.

Boas believes that in cases like this the membranous enteritis is caused by the abnormal bends and flexures of the large intestine.

The vertigo dyspeptica of Trousseau,[1] which was believed to be due to chronic gastritis, depends in most cases upon atony of the stomach and intestines. I reported such a case in my paper on "Atony of the Stomach."[2] Another case has come under my observation originating in intestinal atony.

Case IV, Table II.—J. L., a male, forty-seven years old, has been suffering from constipation for years, which during the past year has become more severe. The bowels are moved at intervals of four or five days after the use of purgatives. There is constant headache, which has recently become very severe and frequently passes into vertigo. This at times becomes very intense when the constipation has lasted several days, so that the patient is sometimes unable to stand. The vertigo is at once relieved when the bowels are thoroughly evacuated. The appetite is usually good, but when the constipation is very marked the former suffers correspondingly. The patient is a well-nourished individual, with a strong, full pulse. The tongue is coated, the heart and lungs are normal, the liver and spleen not enlarged. The right kidney is dislocated to the second degree. Even after the ingestion of large quantities of fluid (500 c.c.) no splashing sound can be elicited over the region of the stomach. One hour after an Ewald test-breakfast but 35 c.c. of gastric contents are obtained, with an acidity of 66, the HCl equalling 0.184. Seven hours after a Leube test-meal the stomach is found empty. On inflating the stomach with air, it is found dislocated slightly downward, the lesser curvature being 5 cm. below the ensiform cartilage in the median line, the greater curvature 2 cm. below the umbilicus. While the stomach is empty 100 c.c. of warm water are thrown into the bowels, and marked splashing-sounds and succussion-sounds are produced. The upper border of the colon in the median line is at the umbilicus, the lower border 7.5 cm. below, the greatest diameter of the transverse colon being 7.5 cm. The urine is clear, and contains neither sugar, albumin, nor casts.

Intestinal catarrh and ileus paralyticus may also be mentioned as complications of intestinal atony. Ileus paralyticus may arise when long-continued atony has passed over into paralysis of the bowels. Under these circumstances the advance of feces is arrested and the symptoms of intestinal obstruction are induced.

Large fecal tumors are often formed as a result of atonic conditions of the bowels. These may

[1] Boas: Loc. cit., p. 84.

[1] Trousseau: "Vertigo Dyspeptica," Gaz. des Hôpitaux, 1862.

[2] Loc. cit., p. 12.

become so large as to simulate tumors of other organs. According to Griessinger[1] forms of mental derangement may result from the chronic constipation found in atonic conditions of the bowels, which may even lead to grave forms of hypochondria.

Atony of the intestine must be differentiated from other disorder of the bowels leading to chronic constipation. Among these may be mentioned entero-spasm (that is, a spastic condition of the colon), chronic colitis, and dilatation of the colon.

From entero-spasm atony is diagnosticated by the peculiar character of the stools. In the former the stools are usually pencil-shaped in form. In some, small amounts only are passed; in others the stools are abundant, but always of small caliber. In these cases the splashing sounds and succussion-sounds cannot be produced by the method of Boas with small quantities of fluid.

From chronic colitis, atony of the intestine is also distinguished by the condition of the stools. In chronic colitis they are found constantly and intimately intermingled with or surrounded by layers of mucus, which at times may be so small in quantity that only a microscopic examination will reveal the true condition. With small quantities of fluid, according to the method of Boas, neither splashing-sounds nor succussion-sounds can be produced. At times the two conditions, atony and chronic colitis, may coexist.

From dilatation of the colon, atony may usually be diagnosticated by a careful rectal examination. In most cases of dilated colon, some rectal obstruction will be found which will be recognized as the cause of the dilatation. That atonic dilatation of the colon does occur is, however, well known. A case of this kind has been recently reported by Walker and Griffiths[2] in which an enormous congenital dilatation was found in a boy, giving rise to great abdominal distention, tympanites, etc.

The treatment of intestinal atony depends upon its cause. If the condition is secondary, the treatment must be directed to the primary disorder.

Chronic constipation is the symptom that occasions most annoyance, and special attention must be directed to it. In all uncomplicated cases of atony of the colon the condition can be successfully relieved by simple measures. The hygienic and dietetic treatment is highly important. Inasmuch as sedentary habits predispose to this disorder, exercise is of some value in many cases. This should consist in walking, as well as in gymnastics in which movements of the trunk play a prominent part.

Such foods are ordered as stimulate intestinal peristalsis. In this class are included substances that furnish a large quantity of undigested residue, such as fruits, vegetables, salads, Graham and rye breads. When there is no special contra-indication (such as gastric atony), large quantities of cold water taken before breakfast may be serviceable.

There are certain natural mineral waters which are sometimes of great value in the treatment of intestinal atony unaccompanied by atony of the stomach; the Glauber salt waters belong to this class. The waters of Marienbad are considered of great value for this purpose, especially in the obese; but the saline waters, Kissingen Rokoczy, are sometimes preferable. However, as many cases of intestinal atony are accompanied by atony of the stomach, the use of large quantities of water in these cases should be very restricted.

Persons suffering with intestinal atony should avoid the use of food that tends to constipate. In this class may be especially mentioned red wines, tea, and rice.

The systematic employment of abdominal massage is of great value. There are but few uncomplicated cases of intestinal atony in which the constipation does not yield to this form of treatment. In very persistent cases the manipulation must be practised daily, or on alternate days at least, for from eight to twelve weeks. To be effectual the movements must be deep.

Abdominal massage is much assisted by electricity; by the external application of moderately strong faradic currents good effects are usually obtained; or the faradic current may at times be applied internally, one electrode being placed in the rectum, the other on the abdomen. When the galvanic current is used the rectum is filled with water before the negative pole is introduced, the positive pole being placed upon the abdomen.

In cases in which massage and electricity cannot be employed excellent results are frequently obtained by injections of large quantities of oil, as recommended by Fleiner.[1] When the conditions insisted on by Fleiner are fulfilled the injections rarely fail. In a large number of cases in which I have employed these injections for the treatment of this form of chronic constipation they rarely proved unsuccessful. The regulations to be fulfilled are: 1. Only the very purest oil should be employed; olive-oil is the best. 2. Large quantities of the oil (from ten to fifteen ounces), heated to the temperature of the body, must be injected while the patient

[1] Griessinger: Pathologie und Therapie d. psych. Krankheiten, 3te Auflage, S. 221, 236 und 301.

[2] Walker and Griffiths: "Congenital Dilatation and Hypertrophy of the Colon fatal at the age of Eleven Years," British Medical Journal, July 29, 1893, page 230.

[1] Fleiner: "Ueber die Behandlung der Constipation und einige Dickdarmaffectionen mit grossen Oelklystieren," Berliner klin. Wochenschrift, January 16 and 23, 1893, Nos. 3 and 4.

is resting on the back with the pelvis raised. 3. The injections must be given carefully and slowly, so that no air enters the colon. When air is introduced severe colicky pains are frequently produced and the oil is immediately ejected. 4. The oil must be retained in the bowels for several hours; for this reason it is best for the patient to remain in the reclining position for several hours after the injection has been given.

When the injections of oil and the other methods just mentioned cannot be employed, injections of other fluids, such as warm water, cold water, glycerin, may prove serviceable. The introduction of glycerin suppositories into the rectum or the application of powdered boric acid to the mucous membrane of the rectum sometimes gives relief.

The employment of cathartics is in most cases to be deprecated. Inasmuch as patients become quickly habituated to remedies of this kind and their effect gradually wears away, larger and larger doses become necessary. When cathartics must be given the simplest are the best, and the various preparations of cascara sagrada seem to me to head this list. Pills of strychnin sulphate or the extract of nux vomica with belladonna are to be highly recommended to strengthen the relaxed condition of the bowels.

THE MILD CHARACTER AND THE DIMINISHED PREVALENCE OF SYPHILIS, AND THE INFREQUENCY OF VISCERAL SYPHILIS.[1]

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of Philadelphia;
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I am fully aware of the want of precision of the statements in this paper that should attend all scientific communications. For reasons that will be briefly considered later, such precision could not be obtained. It is unfortunate that we must deal in generalities, but the tide of thought may be turned in the direction indicated by these lines, and precision sooner or later be attained. This paper is presented with the object of eliciting discussion, so that, if possible, we can carry with us, if desirable, more definite notions of the prevalence of the disease and of the virulence of its manifestations.

The frequency in a community of a disease of the character we are considering can only be determined positively by compulsory notification. In the absence of such notification, we must resort to the statistics of the hospitals and to the records of physicians in private practice. The former do not tell the story correctly, because too many individuals are engaged in the make-up of the statistics. That uncertain quality, the "personal equation," is one of the many disturbing factors that make such data unreliable. Moreover, the victim of a disease like syphilis, which presents so many "ups and downs," may be treated at different times in the same institution during the same year, or at various institutions during that period.

The records of physicians in private practice would likewise be misleading. The tendency of syphilitic patients to see more than one physician, the choice depending upon the organ or structure at the time the seat of the disease, is one factor. Again, the class of practice that engages the attention of the individual physician would modify his statistics. The specialist on venereal diseases sometimes shudders at their apparent prevalence in the community, while the general practitioner observes but few cases in a corresponding period. Then, too, a man at fifty must not decide upon the frequency of a disease because he sees more than he did at twenty-five.

In short, there is no definite quantity upon which to base our calculations. This difficulty may in part be overcome by taking a definite class of men who are under the observation of a corps of students guided by the same definite purpose, both classes remaining as more or less fixed quantities. The statistics of the Army and Navy are therefore reliable up to a certain point. They are not, however, an index of the ravages in a community.

Another factor that does not fluctuate may be found in the records of the hospitals and dispensaries that treat venereal diseases alone. If one only of each existed in a city, a fair idea of the prevalence of the disease could be obtained. Usually this is impossible; especially is this so with dispensaries, for the patient wanders from one to another at his own option as fancy or convenience dictates. Many other factors also, as the movement of population, cause a variance in the attendance of patients upon a particular dispensary.

The nearest approach to the ideal definite quantity is to be found in a community that has but one hospital for the treatment of syphilis. Even here fallacies enter, and we can only judge of the frequency of the disease by inference, for the class attendant upon the hospital constitutes only a portion of the total number that may be infected.

Obviously, therefore, we can only come to that which approaches a conclusion by the expression of individual impressions. Scientific definiteness of statement, it is to be deplored, cannot be obtained. If such impressions tally with the statistics of a hospital situated under the circumstances indicated, they are all the more trustworthy.

Notwithstanding the increased scope of view,

[1] Read before the Association of American Physicians, at Washington, D. C., May 31, 1894.

and the occurrences of fallacies, I am firmly imbued with the impression that there is less syphilis in Philadelphia than there was ten or fifteen years ago. It is certain that the disease does not come under observation as frequently, either in private or hospital practice, as in former years. Does this tally with hospital-statistics that have some impress of definiteness?

In Philadelphia the indoor treatment of syphilis with lesions that render the disease communicable is limited to the Philadelphia Hospital (Blockley). To the wards of this hospital are admitted those of the poorer classes that are victims of the disease. It follows that any statement concerning the prevalence of syphilis obviously applies only to this prevalence among the poorer classes. The development of the disease is, however, more favored by the conditions that surround these classes. Any fluctuation in the prevalence of the disease among them is nevertheless a tolerably fair index of its frequency in a community.

The percentage of the cases of syphilis treated in the Philadelphia Hospital is indicated by the following table:

Per Cent. Syphilis in Hospital for Periods of Five Years—1864 to 1893 Inclusive.

1864 to 1868 = 6.68 per cent.	1879 to 1883 = 4.26 per cent.
1869 to 1873 = 4.56 "	1884 to 1888 = 3.76 "
1874 to 1878 = 3.36 "	1889 to 1893 = 3.05 "

It is thus seen that in a period of twenty-nine years the reduction in the percentage of cases of syphilis is more than one-half, and this in face of the fact that the population of the community from which the cases are drawn has increased fully 35 per cent. in the three decades, and that, moreover, this reduction in percentage would be still greater if the other wards of the hospital increased in a ratio corresponding to the increase of population of the city of Philadelphia. In 1864, 5815 cases were treated in the hospital, whereas the number had only increased in 1892 to 7942 cases, a ratio of increase far below the increase of the sick poor of the population. This increase did not occur, because five new hospitals were built and all of the old hospitals were enlarged, furnishing shelter for the sick that otherwise would have sought the Philadelphia Hospital.

The *cause* of this diminished prevalence of syphilis can only be a matter of speculation until we have more satisfactory knowledge of the nature of the specific virus and of its biologic properties. It is fair to presume that habits of greater cleanliness among the public form one large causal factor. Then, too, the more modern methods of treatment, which lessen the duration of the contagious period of the disease, contribute to this decline. It is furthermore not stretching the imagination to any great extent to urge the probability either that the soil is less favorable for the development of the disease, or that the activity of the virus is attenuated.

It must, of course, be remembered that the "war-period" had much to do with the prevalence of syphilis in the decade from 1864 to 1874.

The mild character of syphilis. I have had forty-eight cases of syphilis throughout its course, under observation as family practitioner for periods of ten years. Three are in women that have married and have borne children. In two of these the children presented symptoms of inherited syphilis, but have grown up healthy. Other children in perfect health were subsequently born to the parents. All of these cases I believe are cured. None ever presented grave lesions of syphilis. The only case of death from syphilis that I saw, barring aneurisms and other vascular lesions of this disease, was one in which meningitis developed in a young man in the practice of Professor Wood.

If we compare the present records of the venereal wards of the Philadelphia Hospital with those of twenty and thirty years ago, we find the most marked improvement. Formerly, grave ulcerous lesions were common; now they are the exception. The "syphilitic cachexia" was frequently seen; now it is extremely rare.

I had expected to show from a study of all cases of syphilis in the hospital a decline of the tertiary varieties of the disease. Such decline has occurred, and, in view of the facts previously mentioned regarding the increase of accommodations of other institutions for such patients, is not without significance. From 1864 to 1868, 3 per cent. of all cases in the hospital were recorded as tertiary, visceral, or nervous forms of syphilis. All forms of internal syphilis are included. The diminution was one only of moderate degree—from 1868 to 1873 to 2.25 per cent.; from 1874 to 1878, 1.95 per cent.; from 1879 to 1883, 2.2 per cent.; from 1884 to 1888, 2.65 per cent.; from 1888 to 1893, 2.45 per cent. The decline is only a fractional one, but even no decline in per cent. would mean a diminution in amount.

I believe there was less tertiary syphilis than the records indicate. In one year the records of the nervous wards showed sixty-nine cases of syphilitic hemiplegia; in another year the cases of this character were less than six. It looks as if the diagnosis was made in accordance with the bias of the observer. The small amount of tertiary and visceral syphilis seems to indicate a lessening of the virulence of syphilis. This is substantiated by the accounts of the disease given by writers of forty or sixty years ago, and by the statements of physicians whose experience bridges the epoch just mentioned. In the Presbyterian Hospital we have treated in the medical wards 5000 cases. Of that number thirty

cases were diagnosticated as tertiary syphilis; eleven cerebral; two spinal; two hepatic; four laryngo-pharyngeal; a total of forty-nine cases. Certainly if the disease was common and severe, more cases would have resorted to this institution.

Syphilitic disease of the organs of the thorax and abdomen is included, with the exception of syphilis of the bloodvessels, endarteritis. Here, again, older writings are full; modern writings are the echoes apparently of the past. The experience in the Presbyterian Hospital is a case in point of their infrequency. In a series of three hundred and thirty autopsies which I have conducted, the visceral lesions of syphilis (other than vascular) occurred but once. In private practice I have had but two cases (elsewhere reported) of visceral syphilis outside of the nervous and vascular systems. Are we not justified in asking: If pulmonary and other forms of visceral syphilis are rare, is it not possible that the so-called syphilitic lesions of the arteries and nervous system are due to other causes?

The statistics that I could consult are unreliable, I regret to say, and any information they may possess is buried in such a manner in the notes of the autopsy as to be unavailable.

Granting the mild character of syphilis and the infrequency of visceral forms, are we warranted in considering the syphilitic process a factor in the pathology of vascular and nervous syphilis? I believe that visceral syphilis has been common in the past, or else was mistaken for the lesions of tuberculosis. I believe that it is at present infrequent, without being able to give definite data. Should there not be a similar decline in the frequency of vascular and secondarily (for there is usually a primary endarteritis) nervous syphilis?

Résume. In the Philadelphia Hospital, the only institution in Philadelphia in which early syphilis is treated, there has been a progressive diminution in the number of cases of syphilis, notwithstanding the increase in the population of the community, and despite the fact that the statistics were begun just after the war, at a time rife with such diseases. Syphilis is at present a mild disease. Tertiary manifestations are not common. Visceral syphilis is rare.

INOCULABILITY OF ECTHYMA.[1]

By J. H. McCORMICK, M.D.,
of Washington, D. C.

When one sees an inflammation of any kind in this iconoclastic age of ours he asks if it is infectious or contagious, and if it is due to a specific organism. This has been the case with almost every affection of the skin, with the exception of ecthyma, and this seems, in a great measure, to have escaped this inquiry. As most authors describe the disease as non-specific and non-infectious, and as German authorities, under the lead of Hebra and Kaposi, deny the existence of the disease as an affection, *sui generis*, believing it to be eczematous in character, and thus considering it a symptom and not a disease, and as the clinical picture of a typical ecthymic eruption is seemingly at variance with both of these claims, it was determined to seek the solution of the problem at the first opportunity by a series of experiments in order to ascertain whether the former or the latter proposition was true.

In the early spring of 1892 the following case appeared at the Johns Hopkins Hospital, exhibiting such a typical eruption and such an interesting history that it seemed to be the case above all others for the investigations in question.

G. E., thirty-five years old, by occupation a book-keeper, of slight build and medium height, and of a decidedly anemic appearance, was, several weeks before consulting us, called upon to care for his employer's horse, in the absence of the regular hostler, a business with which he was unfamiliar. He noticed several "sores" upon the animal's leg, and treated them with carbolic lotions. About a week afterward he noticed five or six pustules upon his own right leg. These pustules, situated each upon a large dark-red areola, broke down, and at the end of two or three days formed dark-red or brown crusts. The itching was quite severe, and at the time of his admission to the hospital there were seven or eight large, elevated, hard, dark-brown or brownish-black incrustations, about the size of the finger-nail, situated upon and deeply imbedded in a deep-red base, which completely surrounded them; upon removal of the crusts, a thin, yellowish, sanious pus exuded; the pain and itching were considerable; the whole presented the appearance of a typical ecthymic eruption, showing that an active inflammatory process had taken place.

The patient was inoculated in three different sites upon the posterior surface of the left leg, and was told to return in three days; at the end of that time the places where the inoculations were made showed a typical eruption, with the exception that the pustules were not quite so large and indurated as those from which they were taken, and it is interesting to note that in no other spots did the eruption appear except where the inoculations were made.

At the second visit, two patients, one suffering from lupus the other from seborrhœa sicca, consented to be inoculated, and for sake of convenience were designated A and B.

A was inoculated upon the right leg from the right leg of the original patient, and B upon the left leg from the left leg or induced case; at the end of three days the eruption appeared in every place thus treated.

The virus was transferred from the left leg of B to the left of A, and from the right of A to the

[1] Read before the Medical Society of the District of Columbia, April 18, 1894.

corresponding limb of B, and when the resulting lesions made their appearance, as they promptly did at the end of three days, they were transferred to either arm of the original patient, and in every case the eruption appeared more or less marked in every site thus treated.

By reason of the unavoidable absence of Dr. Gilchrist, who so kindly assisted me in the first experiments, we were unable to make a bacteriologic examination to determine whether there were specific ecthymic bacilli or some other present.

Dr. Hyde, pursuing the same course as Kaposi, claims that ecthyma is not a distinct disease, but is due to some common septic bacteria, and that the eruption is but one of the many manifestations of eczema; yet he thinks that the term ecthyma should be retained, and should be used for convenience, because the lesion is quite characteristic, and thus the disease is described meagerly, or not at all, by German authorities; while, on the other hand, just as competent observers have recorded 726 cases out of a total of 123,746, noted in the *American Statistics of Dermatology*. Stelwagon records 23 cases out of 4200 cases of skin-disease seen by him at the Philadelphia Hospital for Skin Diseases, covering a period of ten years, from February, 1880, to November, 1890. It is probable that if the affection were a mere eczema it would occur more frequently than the statistics show. As to its powers of infection, James S. Rankin, of Segowlie, Bengal, describes ten cases in which the disease was transmitted from one to another. Three children played with his own child, aged six years, who became infected with the same trouble from which they suffered, and which he stated was, or closely resembled, ecthyma. The child in turn infected his mother. Upon investigation it was learned that these children had just returned from the indigo-district, where they had come in contact with four or five others who were afflicted in the same manner, and the eruption was attributed to the irritation caused by the liberation of ammonia in the indigo-factories where the latter cases worked.

As to the inoculability of ecthyma, Vidal, in 1846, demonstrated its auto-inoculability by transferring the virus from the leg to the forearm.

It is not the province of this paper to discuss the question of treatment, but in passing it may be interesting to state that some trial was made with a combination of antipyrin and sodium bicarbonate, based upon its reputed resemblance to quinin, and the property of the latter to allay or arrest the process of pustulation. While the conclusion is not warranted that it always is efficient, yet the influence of the combination was sufficiently marked to justify further investigation.

From the facts as stated the following recapitulation may be made as a basis for future investigation:

First. *a.* By direct experimentation.

(1.) Vidal, in 1846, demonstrated the auto-inoculability of ecthyma.

(2.) The author, in 1892, demonstrated the auto-inoculability and the inter-inoculability of the disease.

b. By presumptive evidence James S. Rankin, in 1883, demonstrated its infectiousness.

Second. As to the existence of ecthyma as a disease, *per se*, *a.* Hebra, Kaposi, Hyde, et al., claim it to be the manifestation of an eczema or dermatitis, due to a simple septic bacillus.

b. Most authors claim it to be non-specific, but a distinct disease.

Third. As to its power of infection.

a. Positive: Rankin demonstrated its infectiousness.

b. Positive: Vidal and the author demonstrated its infectiousness by artificial means.

c. Negative: Most authors claim it to be non-infectious, based upon their failure to observe it as such.

Fourth. As to the presence of a specific ecthymic bacillus.

a. Most or all authors claim that there is none.

b. In the foregoing observations we failed, by accident, to note this particular fact.

Fifth. The following points, for one or another reason, were not noted:

a. The presence or absence of a specific ecthymic bacillus.

b. The presence or absence of bacteria of any kind in the patient.

c. The presence or absence of bacteria of any kind in the eruption upon the horse.

Sixth. The results, while not conclusive, because based upon too few experiments, seem to warrant the following conclusions:

1. That ecthyma is auto-inoculable.
2. That ecthyma is inter-inoculable.
3. That ecthyma is infectious.

a. From animals to man.

b. From man to man.

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CLINICAL MEMORANDA.

THREE AMPUTATIONS OF THE THIGH—TWO IN THE UPPER THIRD, ONE AT THE MIDDLE.

By JOHN W. ROSS, M.D.,
SURGEON, U. S. N.

Case I.—Lewis Hart, a negro, seventeen years old, of Yellow River, Santa Rosa County, Fla., was brought to me March 24, 1888, with the right knee and ankle disorganized by suppurative tuberculous disease of seven years' standing. All the structures concerned in these joints were involved; the knee was dislocated outward; pus was escaping by seven or eight fistulæ in the thigh

and leg; the lower end of the femur was softened and breaking down. There was great emaciation, profound anemia, extreme debility, difficulty in deglutition, loud anemic cardiac murmurs, but no organic disease of vital organs.

I decided to amputate as soon as the patient could be built up sufficiently to stand the operation.

On March 28th, the patient, showing no signs of improvement, but rather the reverse, I concluded to operate at once. Captain M. C. Wyeth, U. S. A., Post-Surgeon at Fort Barrancas, willingly consented to help me, although he thought that the patient would die from the anesthetic, as his heart was acting badly. He administered the ether, preceding it by a small drink of whiskey, and the operation was quickly done, Apothecaries Purden and Waggener, U. S. N., and Nurse John Kelly assisting us. On account of the unhealthy state of the soft parts, an irregular flap-operation, approaching the circular, was done, two fistulous openings being unavoidably included in the longer anterior flap. The femur at the point of section, at about its center, was hardly more than a circular shell of bone, with a large medullary cavity.

The patient emerged from the anesthesia with very little life in him, but was kept alive for a few days by frequent small quantities of liquid food, digitalis, and stimulants. After that he began to gain strength, and continued to do so, though very slowly. The vitality of the tissues was so low that it was impossible to get even an attempt at primary union of the flaps, and the stump had to be treated as an open wound. Whenever it was closed pain would come on and the temperature would rise. The flaps were kept as aseptic and in as good a position as possible, and at the end of about three months the patient went home with a good stump and in fair general health.

After reaching home he grew fat and hearty, and being unusually intelligent acquired a fair education, writing me occasionally very creditable letters.

Subsequently the same trouble that had destroyed the knee and ankle unfortunately reappeared in some of the lower costo-vertebral articulations, and the patient returned to me with an abscess to the right of the spine in the lower dorsal region. This was opened and cleaned out, and for about two years since there has been no advance of the trouble and the general health has been good.

Case II.—Captain W. C. Gorgas, U. S. Army, Post-Surgeon at Fort Barrancas, who took a prominent part in the operation and after-treatment, has kindly given me a copy of his record of the following case:

"Thor Christiansen, a Swedish sailor, eighteen years old, in February, 1890, fell, in Pensacola Harbor, from the mast of his ship to the deck, striking on the head of a belaying-pin, driving it through the upper third of his left thigh and breaking the femur at this point.

"He was taken to the Marine Hospital at Pensacola, and attempts were made to save the limb, but suppuration set in and the patient went from bad to worse.

"I first saw the patient July 13, 1890, in consultation with Dr. J. W. Ross, U. S. N., and Dr. Anderson. The lower fragment at this time protruded through the skin, and the upper one was about to come through, both communicating with a pus-cavity that held about a pint. The man suffered great pain, any movement causing him to cry out. The emaciation and debility were greater than I have ever seen in a person who recovered. Indeed, I thought it probable that he would not survive the night. I estimated at the time that he had about three square feet of bedsores, the largest, that over the sacrum, covering fully a square foot, and laying the bone bare. Every point of pressure was bare, elbows, scapulæ, ribs, iliac bones, etc., and the pressing bone was bare in many of these places. There was no albumin in the urine, and all other organs were healthy. I was inclined to think that the patient would die in the course of the next twenty-four hours; I was quite sure that he would not survive operation. This was the opinion of all who had seen him.

"Dr. Ross, having had a somewhat similar case before, urged immediate amputation, in which I supported him with many misgivings. Dr. Ross amputated at the point of fracture, making a circular skin-flap, and slitting up the flap to get out the dead bone. A short piece of femur was left *in situ*, the idea being to subject the man to as little shock as possible, and to disarticulate at the hip-joint a few days later, after he had somewhat recovered. Great care was given to asepsis during the operation. The patient suffered profoundly from shock for several hours, and it was only by steady care and stimulation that he survived. He began to gain from the day after the operation, and we kept deferring the second operation till we saw that it was not needed. He was moved to the military hospital at Fort Barrancas on the 21st.

"Improvement was rapid and steady, and by September 22d he was walking about on crutches. He left the hospital in December, with all of the bedsores healed and the stump in good condition.

"What so impressed me in this case was the fact that a patient so weak and debilitated could recover from any operation. In future I shall not hesitate to operate on a patient, with otherwise healthy organs, on account of debility, unless he is actually *in articulo mortis*. After this case it seems to me that it can never be too late to operate on such a patient."

Having been called in consultation by the surgeon of the hospital, I saw Christiansen first on July 10th, three days before the operation and about five months after the reception of the injury. He was a mere shadow and was expected to die at any hour. The lower end of the upper and the upper end of the lower fragment were widely separated, with several pieces of dead bone and a large pus-cavity intervening. The surgeon, after having tried many ingenious contrivances for keeping the bones in juxtaposition, had abandoned all hope of union, and was doing what he could to diminish suffering. As there was no other earthly hope, and as I had seen a very similar case saved by it, I advised immediate operation.

On July 12th the patient collapsed, and it was thought that the end had come. After he had reacted the surgeon telegraphed me to come up and amputate.

On the next morning, July 13th, Dr. Gorgas, Dr. Anderson, and I, assisted by our apothecaries and stewards, operated in the manner described.

Once during the operation and once immediately afterward life appeared about extinct, but with external

heat, stimulants hypodermatically and internally, and his wonderful vital tenacity, the patient survived. Apothecary (now Dr.) Richard Waggener staid by him until the next day, keeping him warm, nourishing him, and stimulating him *per os* and hypodermatically with whiskey, digitalis, and atropin. On the following morning Dr. Anderson told me that the patient would surely have died during the night but for Waggener's faithful and skilful care. As the attendants in the hospital were overworked with other patients, one of the navy or army attendants nursed Christiansen night and day for nearly a week, at the end of which time he had gained a little strength and was comparatively comfortable. On July 21st Dr. Gorgas, in great kindness, sent an ambulance and took the patient to the army hospital, where there was a full corps of attendants and few patients. There he was nursed like a child back to health, the great difficulties being to heal the bedsores and teach him how to walk, as the muscles had atrophied and apparently disappeared.

Finally, by December, being perfectly well and sound, he went back to his home in Wexio, Sweden.

Some months later he sent me a grateful letter, telling me that he was strong and robust, asking advice regarding an artificial leg, and sending his photograph, which showed him to be in perfect health.

In the following case the operation was not done by me. I am responsible for it, however, as but for my persistency it would not have been performed. It is reported here, because it conveys the same lesson, *nil desperandum*, as the two foregoing, and because of its striking resemblance to one of them. But for my experience with this case I should not have advocated or done the operation in Case II.

Case III.—George William Ritchie, an ordinary seaman-apprentice on the U. S. Flagship *Hartford* about nineteen years old, on October 24, 1884, fell from aloft on the *Hartford* in the bay of Callao, Peru, striking the ratlines and landing on the grating of the Hotchkiss gun, sustaining a compound, comminuted fracture of the upper third of the left femur, a fragment of bone projecting through the external wound.

On October 28th he was transferred ashore to the Guadalupe Hospital, Callao, where he passed out of the hands of the U. S. Surgeons.

The *Hartford* sailed away not long afterward, and I being attached to the U. S. S. *Onward*, at Callao, was requested to look out for the boy. He seemed never to have recovered fully from the shock of the injury, and had gone along pretty rapidly from bad to worse. At the end of about three weeks he was in very much the same condition as was the boy Christiansen (whose case has been described) when first seen by me, except that he was less emaciated and the bedsores were not so bad. The wound was bathed in pus, and the broken ends of the upper and lower fragments movable and overlapping for several inches, with two or three pieces of broken bone hanging to them. There was high fever (apparently hectic), profound prostration, delirium, and intense suffering. A skilful diagnostician who examined him carefully, thought that pyemia had set in, involving especially the lungs.

As death was certain and imminent without it, I endeavored to get the visiting surgeon of the hospital, Dr. Távara, to remove the limb. He declined on the ground that it would be entirely useless, that the boy would die whether he amputated or not, and that it would injure his private practice to have the patient die during or immediately after operating upon him.

At about this time the U. S. Steamship *Wachusett* came to Callao, with Surgeons W. H. Jones and W. R. DuBose, U. S. Navy, on board. These gentlemen went with me to see Ritchie, and agreed that death was inevitable without amputation. I also got Dr. Campion, a very able English surgeon of the Pacific Navigation Company, in charge of their hospital at Callao, to see Ritchie, and he shared the same opinion. I then brought about a meeting of these surgeons, Drs. Jones, DuBose, Campion, and Távara, for a careful consideration of the case. Dr. Campion thought that amputation could do no harm and would greatly diminish the patient's suffering. Dr. Jones had slight hope that it might save the patient's life, and remarked that anyhow we might just as well kill him as to let him die by inches. Dr. DuBose thought that the only shadow of a chance for the patient's life lay in amputation. Dr. Távara considered that amputation would shorten the patient's life, that he did not like to operate in such hopeless cases, and that it would injure his reputation as a surgeon for Ritchie to die during or as the result of the operation. I said that the patient was a red-headed Scotch lad, with lots of vitality, and that if we would rid him of that thigh, with its terrible pain and discharge, I believed he would get well. I proposed that if Dr. Távara would go ahead and cut the limb off we would all assist him in the operation and take the whole responsibility. The other surgeons supported me in this, and Dr. Távara yielded.

On November 9th, the day following our conference, I believe, we met at the Guadalupe Hospital, and assisted Dr. Távara in amputating in the upper third of the left thigh.

The very next day the patient was decidedly improved in every way, and from that time went straight along to recovery.

During the following year I met Ritchie in New York City, getting fitted with an artificial limb. He was in fine health, and seemed almost as active on his one leg and crutch as the average man is on two legs.

In these three cases, all of the kind that have entered into my experience during the past ten years, three lives were saved, but had only one been saved the amputations, with all their trouble, responsibility, etc., would have been amply justified. They are reported with the hope that the results may cause other surgeons to operate under similar circumstances when they would not otherwise do so. Obviously the lesson they convey is of much wider application than to amputations, and covers all cases in which without operation death is certain, and when with it the slightest chance for life is afforded. It is not an agreeable thing to have a patient die upon the table, or to feel that an operation has been the immediate cause of death, and that the surgeon's reputation may temporarily suffer thereby, but it is the surgeon's duty to put himself in the patient's place, and do unto him as he would wish to be done by. Human life is too sacred for any chance, however small, of saving it to be thrown away. In such cases, even when the patient

does not survive, he is almost certainly delivered from much suffering.

I remember seeing in Bellevue Hospital, New York, about twenty years ago, a woman who for some iniury of the leg had been urged to submit to amputation above the knee. She refused operation until she saw that she was about to die, and then begged with tears to have it done. Then the surgeons would not amputate, believing that it was too late, and within a day or two the woman died. I have often thought since that had they operated promptly as soon as she gave her consent her life might possibly have been saved.

In the foregoing cases no unusual operative skill was employed, nothing more than any well-equipped surgeon of moderate experience might command.

A study of these three cases has strengthened an opinion long held by me, that the danger of shock in modern operative surgery is overestimated. May not much of the dread of it have come down to us from the pre-anesthesia days when there was so much suffering from pain and fear? May not much that we attribute nowadays to shock be due to loss of blood or to too energetic administration of anesthetics? I can testify from personal subjective experience that the shock of being knocked down by an anesthetic, as it is frequently administered, is very great indeed, extremely like that of a heavy blow on the top of the head.

Our plan here (the Government Reservation, near Pensacola, Fla.) is in the great majority of cases, both obstetric and surgical, to begin with chloroform given in small quantities very gradually until the patient sinks into an apparently natural sleep, and then the sensibility of the respiratory mucous membrane being obtunded, substituting the more irritating but less dangerous ether, to maintain the anesthesia with the latter. This method costs a little more time and trouble, but we are satisfied that it pays well. In our work here we have given chloroform and ether to several hundred patients without any approach to an accident from the anesthetic. As Dr. Gorgas expresses it, "We chloroform the patients in order to give them ether."

EXCISION OF THE GASSERIAN GANGLION.[1]

By R. W. STEWART, M.D., M.R.C.S.,
SURGEON TO MERCY HOSPITAL, PITTSBURG, PA.

The first operation for the removal of the Gasserian ganglion was performed by Rose, an English surgeon, in 1891, since which time it has been performed about forty times. As neither the number of cases that have been operated upon nor the duration of time that has elapsed is yet sufficient to thoroughly establish the value of the operation, any statistical material that can be added to that already published cannot but be of value.

The following case is interesting, as it illustrates, in addition to the operation named, the results of two others undertaken for the relief of tic douloureux:

Mrs. H. R., forty-eight years old, married, having four children living and healthy and three dead, came under observation May 27, 1892. She had had good health until about twelve years before, when she began to suffer from neuralgia affecting the right superior maxillary nerve, the most sensitive point being the mucocutaneous border of the upper lip on the right side. The pain was paroxysmal, and was induced by the slightest irritation of the upper lip and buccal mucous membrane on the affected side. Eating and drinking were particularly prone to excite a paroxysm of pain. While the pain invariably started from the second branch of the fifth nerve, it frequently radiated along the other branches of the nerve. During the period of the twelve years referred to, the patient had tried all kinds of remedies without any relief. In April, 1890, Dr. A. M. Cook, of Newcastle, Pa., excised the superior maxillary nerve external to the infra-orbital foramen. This operation afforded relief from the pain for a period of eight months, at the end of which time it returned in a more violent degree than ever.

On May 31, 1892, I operated on the patient at the Mercy Hospital, removing the superior maxillary nerve as far back as the foramen rotundum, together with Meckel's ganglion. The operation was performed after the method of Carnochan, as follows: A triangular flap was raised, its base being upward, and the center corresponding to the infra-orbital foramen. The nerve, as it emerged from the foramen, was freed from the surrounding tissue, and a fixation-ligature was thrown around it. A stout gouge-chisel was next used to open the anterior wall of the antrum, into which an opening was made corresponding with the foramen, and large enough to permit of the introduction of the finger. The nerve was easily traced along the roof of the antrum, and was used as a guide to the posterior wall of the antrum, through which, in turn, an opening was made into the spheno-maxillary fossa. Through this opening an aneurism-needle was thrust, keeping close to the nerve until the anterior surface of the sphenoid arrested its progress. The needle was now rotated in a semi-circle, tearing the nerve apart at the foramen rotundum.

It was found necessary to break the floor of the orbit from within the antrum, in order to liberate the nerve from its bony channel. The nerve was then readily withdrawn, having attached to it the ganglion of Meckel. Hemorrhage during the operation was not troublesome, and was readily arrested by packing the wound with iodoform-gauze.

On June 2d the iodoform-packing was removed and the flap sutured in position. No constitutional disturbance or pain had been felt since the operation. On June 7th the patient was discharged from the hospital, the wound being entirely healed. There was entire absence of pain, but complete anesthesia of the parts supplied by the superior maxillary nerve and Meckel's ganglion. On January 28, 1893, the patient reported that there had been no return of the pain. The parts supplied by the second branch of the fifth nerve were only slightly sensitive.

Mrs. R. remained free from pain for about two years following the operation described. Then the pain gradually returned, and on March 21, 1894, she came to Pittsburg to consult me. She was at this time in a truly pitiable condition. The neuralgia was not only as severe as before the previous operation, but it was not limited to one nerve, as formerly. The most sensitive point was, as before, on the upper lip, but in addition the

[1] Paper read before the Pittsburg Academy of Medicine, May 21, 1894.

slightest touch on the cutaneous surface above the eyebrow, in front of the ear, or over the horizontal ramus of the lower jaw, would bring on a paroxysm of pain pitiable to behold. On this account she was unable to wash that side of her face. Talking, eating, or drinking, even a gust of wind, was sufficient to throw her into an agony of pain. It was impossible at this time to examine the cutaneous sensibility of the affected side of the face. An effort to do so brought on such a paroxysm of pain that it was not repeated. It was learned from the patient, however, that the part previously rendered anesthetic by the removal of the superior maxillary nerve had partially regained its sensibility.

The futility of therapeutic resources, as previously demonstrated in this case, left nothing to be hoped for from medicinal treatment; nor did I feel justified in condemning her to a period of suffering in order to demonstrate again the correctness of this conclusion. The surgical aspect of the case was therefore the only one that received serious consideration.

As all three branches of the fifth nerve were now involved, it was obvious that any operation undertaken for the relief of this condition must be of such a nature as would destroy the conducting property of all three branches. It had been previously demonstrated in this case that removal of even a large part of the peripheral portion of a nerve did not permanently destroy its conducting property. After carefully weighing all the circumstances of the case I therefore decided to remove or destroy the Gasserian ganglion, in the hope that its destruction would cause degeneration of the nerve beyond the possibility of repair.

The patient was accordingly admitted to the Mercy Hospital, and on March 24th, with the assistance of my colleague, Dr. Buchanan, and the resident staff of the hospital, I performed the operation for removal of the Gasserian ganglion. Aside from the antiseptic details, the first step of the operation was to suture the margins of the right eyelids together, in order to avoid the danger of exposure of an insensitive eye. Experience has shown that this precaution is unnecessary, but I adopted it here because the right eye was the only good eye the patient had. Dr. Edsall, who examined her eyes, reported that there was almost complete blindness in the left eye from advanced optic atrophy, while the right eye also showed some evidence of beginning optic atrophy. It may be here added that the cause of this condition of the eyes was unknown, but it is probably due to a retro-bulbar neuritis.

The incision in the skin extended from a point directly posterior to the external angular process, backward to the posterior border of the lower jaw, downward to near its angle, and forward to the anterior border of the masseter muscle. The skin-flap thus outlined was dissected forward, care being taken to avoid the parotid gland and its duct, as well as the branches of the seventh nerve. The zygomatic arch was divided by passing a chain-saw round each extremity, through which holes had been previously drilled to facilitate wiring of the parts at the conclusion of the operation. The arch, with its attached masseter, was drawn downward, exposing the coronoid process of the lower jaw, which was also sawn through and displaced upward, with the attachment of the temporal muscle. The external pterygoid muscle was exposed by this dissection, and was detached from its origin on the pterygoid process of the sphenoid.

In this dissection the internal maxillary artery was wounded, with a resulting troublesome hemorrhage. After the bleeding was controlled a search was made for the inferior maxillary nerve. This was somewhat tedious, as the field of vision at the bottom of the now deep hole was constantly obscured by a free oozing of blood. Finally, the lingual branch was discovered and a fixation-ligature thrown around it for the purpose of using the nerve as a guide to the foramen ovale, which could now be felt by tracing the nerve upward.

A small trephine was in readiness to enlarge the opening of the foramen ovale, but its great depth and the obliquity of the base of the skull to the axis of the wound precluded the use of the instrument. I therefore used, instead, a narrow chisel, but unfortunately in guiding the chisel along my finger the latter slipped toward the median line until it was arrested at the foramen lacerum medium, which I at this moment supposed was the foramen ovale, and as a result of this error I drove the chisel not into the bony wall forming the outer border of the foramen ovale, but into the cavernous sinus. The withdrawal of the chisel was followed by an alarming hemorrhage, which immediately filled the cavity of the wound. The blood was arterial in character, but welled out instead of pulsating. The wound was rapidly packed. After a few minutes the packing was removed, but the blood welled out as furiously as ever. The cavity of the wound was again packed, sponges dipped in hot water being used. This was repeated four or five times. Finally the bleeding diminished, and in about half an hour was entirely arrested.

The foramen ovale could now be clearly defined, and was enlarged with the chisel until an opening about half an inch in diameter was made. Through this opening a small stout hook used by dentists was thrust about an inch in the direction of the root of the nerve. The hook was now used to lacerate the tissues, the object being to destroy or scrape away the ganglion. On withdrawing the hook something appeared in the opening, which I seized with forceps and drew outward. With it came the fixation-ligature and the lingual nerve. To my surprise the body proved to be the Gasserian ganglion, almost intact, a small portion of the root being attached. A considerable portion of the inferior maxillary nerve was attached, and the origin of the first and second branches could be detected. The manipulation of the hook within the skull was attended by a free but not troublesome hemorrhage. A drainage-tube was introduced to the bottom of the wound, which was closed, after replacement of the displaced tissues, in the ordinary manner.

The operation occupied two hours. On the fourth day the dressings were removed. The eye was found to be intact. The parotid gland had been wounded in the operation, and the salivary discharge was profuse for several days, until a communication was established with the cavity of the mouth. About a week after the operation the wound became infected, but ultimately the recovery was excellent. Since the operation there has been absolute freedom from pain. There is loss of sensation over the entire area supplied by the fifth nerve, but this loss is not absolute, certain cutaneous areas

retaining a slight degree of sensibility. The nutrition of the eye does not seem to be affected. The conjunctiva is almost completely anesthetic, with the exception of the inner third, which seems to be hyperesthetic. The right side of the tongue has lost its sensibility to touch and taste. The muscles of mastication are paralyzed, and the opposing muscles draw the teeth of the lower jaw out of line with the upper.

The method of operating for the removal of the Gasserian ganglion just described is similar to that devised by Rose, the pioneer in this operation. Horsley operated on one case by opening the cranium and exposing the nerve as it emerges from the pons. The patient died from shock in a few hours. Hartley, of New York, improved on this operation by opening the cranium without incising the dura, raising the temporo-sphenoidal lobe, exposing the ganglion and removing it as it lies beneath the dura mater. This method seems to have the advantage over the method of Rose, in the precision with which the ganglion can, under favorable circumstances, be removed, and in the absence of such disagreeable, and sometimes unavoidable, accidents as wounding of the parotid gland or the seventh nerve.

According to the appended table of the operations so far published, which is copied from an excellent report of an operation for removal of the Gasserian ganglion, by Dr. W. W. Keen and Dr. J. K. Mitchell, published in the *Transactions of the Philadelphia County Medical Society*, 1894, the operation has been performed forty-one times, including the present case, with the following results:

	Cases.	Recovered.	Died.	Mortality, p. ct.
Rose's method,	20	18	2	10.0
Hartley's method,	19	17	2	10.5
Horsley's method,	1	0	1	100.0
Method unknown,	1	0	1	100.0

TABLE OF OPERATIONS FOR REMOVAL OF THE GASSERIAN GANGLION.

Author.	Reference.	Recovered.	Died.	Total.
Rose[1]	British Medical Journal, 1892, i, 201	5	...	5
Rose[1]	Lancet, 1892, ii, 953.	1	1	2
D'Antona[1]	British Medical Journal, 1893, i, 81	1	...	1
Park[1]	Trans. Amer. Surg. Assoc., 1893, vol. xi, 238	2	...	2
Andrews[3]	Journ. Amer. Med. Assoc., Feb. 18, 1893, 180	3	1	4
Krause[2]	Annals of Surgery, Sept. 1893, 362	5	...	5
Roberts[2]	Proc. Philadelphia Co. Med. Soc., 1892, 490	1	...	1
Lanphear[1]	Pacific Medical Journal, 1892, xxxv, 647	1	...	1
Hartley[2]	Annals of Surgery, May, 1893, 511	1	...	1
Doyen[1]	Rev. de Chir., 1893, 391	1	...	1
Horsley[3]	British Medical Journal, 1891, ii, 1191	...	1	1
McBurney[2]	Annals of Surgery, 1893, i, 516, 519	2	...	2
Parkhill[1]	Medical News, September 16, 1893, 319	1	..	1
Edw Kerr[1]	Journ. Amer. Med. Assoc., Feb. 18, 1893, 181	1	...	1
Fernandez[4]	Siglio Med., Madrid, 1892, 804, 819; 1893, 4, 18, 36.	...	1	1
Fowler[2]	Personal communication	1	1	2
Tiffany[2]	Annals of Surgery, January, 1893, 47	4	...	4
Finney[2]	Johns Hopkins Bulletin, October, 1893	2	1	3
Novaro[1]	Journ. de Med. Chir. et Pharm., Bruxelles, Sept. 20, 1891.	1	...	1
Keen and Mitchell[2]	Trans. Phila. Co. Med. Soc., 1894	1	...	1
Stewart[1]	The present case	1	...	1
		35	6	41

[1] Rose's method. [2] Hartley's method.
[3] Horsley's method. [4] Method unknown.

WESTINGHOUSE BUILDING.

MEDICAL PROGRESS.

Craniectomy for Acute Mania following Traumatism.—PATTERSON (*Occidental Medical Times*, vol. viii, No. 6, p. 377) has reported the case of a man, twenty-eight years old, who a year previously had been kicked in the head by a horse, just in front of the right parietal eminence, and presented manifestations of acute mania. The scalp-wound healed promptly, but there had been constant headache from time of the accident. When not at work the man would rest his arms on a table and his head in his hands, at times remaining thus for hours without speaking. The pain was referred to the parietal and occipital regions of the right side. Pain was also felt in the left arm and leg, and there was numbness of the thumb and index finger of the left hand. A slight depression was found at the site of the previous injury. A portion of skull an inch and a half in diameter was removed from this situation without injury to the dura mater. The bone was abnormally thickened, and the membrane presented an unhealthy gray appearance. The scalp-wound was sutured, and healed without suppuration. For the first twenty-four hours after the operation the patient was perfectly sane. He then relapsed for a few days; but, after this, continuous improvement set in and progressed to complete recovery, although on over-exertion or on exposure to the hot sun there was complaint of pain in the head. The sensations referred to the left arm and leg entirely disappeared. The opening in the skull refilled with bone.

A Ptomaïn Obtained from the Urine of Influenza.—GRIFFITHS and LADELL (*Compt. rend. d. Séances de l'Acad. des Sciences*, t. cxvii, No. 22, p. 744; *Centralbl. f. Bakt., u. Parasitenk.*, B. xv, No. 25, p. 999) have succeeded in isolating from the urine of cases of influenza a ptomaïn having the formula $C_9H_9NO_4$, possessing toxic properties, inducing marked fever and causing death in animals within eight hours. It is obtained by alkalinizing a considerable quantity of urine with a small amount of sodium bicarbonate and adding half its volume of sulphuric ether. After filtration the solution is treated with tartaric acid, which forms with the ptomaïn soluble tartrates. The solution is finally again treated with half its volume of sulphuric ether. Upon evaporation the ptomaïn will be found. The body is a whitish substance, crystallizing in prismatic crystals soluble in water of slightly alkaline reaction. It forms a chlorhydrate, a chlorplatinate, and a chloraurate. It causes with phosphorwolframic acid a brownish, with phosphormolybdanic acid and with picric acid a yellowish, with tannic acid a reddish, and with mercuric chlorid, a whitish precipitate.

Gastric Ulcer unattended with Hematemesis.—WALKER (*Lancet*, No. 3691, p. 1301) has reported the case of a woman who had been suffering with pain in the epigastrium for some time, with occasional vomiting of food, but no hematemesis. From the character of the pain, from its limitation and from its persistency, ulcer of the stomach was diagnosticated. After many weeks of treatment with bismuth and pepsin and strict regulation of the diet, relief from pain was obtained, digestion went on easily, and it became possible to discontinue the medicine and relax the rigidity of the regimen. Some

time later, while under the care of another, the woman suffered from a serious illness, in which she suddenly, with a feeling described as that of impending dissolution, lost consciousness and became deathly pale. On the following day a considerable quantity of coagulated blood was passed by the bowel. Complete recovery followed a protracted convalescence.

A Ptomain in the Urine in a Case of Carcinoma of the Uterus.—At a recent meeting of the French Académie des Sciences GRIFFITHS (*La Presse Médicale*, June 23, 1894) described a ptomaïn that he had succeeded in extracting from the urine of a woman affected with carcinoma of the uterus. The body appears as a white substance, crystallizing in small needles, soluble in water, and of alkaline reaction. It forms a chlorplatinate, a chloraurate, and a chlorhydrate, and gives rise to a yellowish precipitate with phosphortungstic acid, a brownish precipitate with phosphormolybdic acid, and with mercuric chlorid, and a reddish precipitate with argentic nitrate. Analysis shows its formula to be $C_8H_5NO_3$. It possesses toxic properties, and is not found in the urine of healthy persons.

THERAPEUTIC NOTES.

Bone-Marrow in the Treatment of Pernicious Anemia.—FRASER (*British Medical Journal*, No. 1744, p. 1172) has reported a case of pernicious anemia in which remarkable therapeutic results were obtained from the administration of bone-marrow. The patient was a gardener, sixty years old, who presented vomiting, diarrhea, edema of the feet and ankles, moderate and irregular pyrexia, dimness of vision, retinal hemorrhages, anorexia, dyspnea, and complete prostration. For the first two weeks that the man was under observation no medicinal measures were employed. The hemocytes varied from 1,860,000 to 1,460,000 per cubic millimeter, and the hemoglobin from 28 per cent. to 30 per cent., the specific gravity being 1038. There was great distortion in the shape and variation in the size of the hemocytes, which did not form rouleaux. In the subsequent two weeks and a half, from six to twelve grains of ferrous chlorid were given daily. The hemocytes and hemoglobin steadily fell to 900,000 per cubic millimeter and 20 per cent., respectively, and the specific gravity to 1036. In a third period of eight days, from fifteen to twenty minims of arsenical solution were given daily, together with twelve grains of ferrous chlorid. Still further deterioration took place in hemocytes and hemoglobin, the former falling to 843,000, and the latter to 18 per cent.; the specific gravity remained at 1036. During a fourth period of three weeks the arsenic and the iron were continued in the doses named, but three ounces of uncooked ox bone-marrow were now given besides by the mouth. Almost immediate improvement ensued, so that at the end of this period the hemocytes numbered 1,800,000, the hemoglobin amounted to 35 per cent., and the specific gravity was 1042. The patient now began to recover strength and his appetite greatly improved. During a fifth period of twenty-six days the bone-marrow and the arsenic were continued, and salol was additionally given in doses of from fifteen to thirty grains daily. The improvement was maintained, the hemocytes rising to 2,470,000, the hemoglobin to 55 per cent., and the specific gravity to 1047. The patient had become stronger, his complexion had assumed a pinkish hue, and there had been gain in weight. During a sixth period of thirty-two days, bone-marrow and salol were continued and the improvement progressed. The hemocytes reached a maximum of 4,130,000, though they afterward fell to 3,400,000; the hemoglobin rose to 75 per cent., but fell to 70 per cent., and the specific gravity became 1058. The blood-cells formed rouleaux, and were more uniform in size and little distorted. The patient was able to do light work without fatigue; the functions of the alimentary system were well performed; edema, pains, headache, pyrexia, and venous bruits in the neck had disappeared, and the skin had assumed a healthy appearance. During a seventh period, extending over a month, bone-marrow and ferrous chlorid were continued. The hemocytes remained, with slight oscillations, at about 3,400,000; the hemoglobin averaged from 70 per cent. to 75 per cent., on one occasion reaching 80 per cent.; and the specific gravity remained steadily at 1059. All traces of retinal hemorrhage had disappeared. During the eighth period bone-marrow, iron, and salol were administered. The improvement was maintained, the hemocytes reaching 4,000,000, the hemoglobin 85 per cent., and the specific gravity 1060. The patient was now practically in a normal condition, with good appetite and healthy appearance.

Codein-Intoxication.—DUFF (*Columbus Medical Journal*, vol. xii, No. 12, p. 538), has reported the case of a woman who suffered from ovarian pain that was particularly severe at the menstrual periods, and for the relief of which it became necessary to give large doses of morphin. To avert the possibility of a drug-habit the use of codein was contemplated. Accordingly, half a grain was given by the mouth, and a few minutes later the same quantity hypodermatically. In a short time the whole body became greatly swollen, the face being intensely red, and appearing as if stung by bees. The skin was so hyperesthetic that the slightest touch on any part of the body caused the woman to cry out with pain. The lower extremities were cold and purple, the heart-sounds feeble and irregular, and the radial pulse almost imperceptible. By means of large doses of digitalis and whiskey, with hot applications, the failing circulation was soon restored, and in the course of five or six hours the woman felt as though nothing unusual had occurred. To establish the validity of the observation a small dose of codein was given on the following day, with the result of reproducing the symptoms in less degree.

A Convenient Mode of Administering Quinin.—For the ready administration of quinin to children, BOND (*Virginia Medical Monthly*, vol. xxi, No. 4, p. 343) recommends that the drug be made into pill-form with dilute acid, preferably aromatic sulphuric. The pills are crushed and mixed with a little brown sugar, placed upon the tongue dry, and washed down with a glass of water. Sweet chocolate may be used instead of sugar; or the pill may be preceded and followed by the use of liquorice-root. The same principle of procedure may, of course, be employed with other drugs to be administered to children.

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PURIFICATION OF WATER.

ALL large cities are brought ultimately to the serious consideration of methods of treating water-supplies so as to secure the removal of dangerous materials. The reckless way in which the communities of the Atlantic slope have squandered the bounties of Nature, destroying forests, wasting mineral resources, and extending cities and manufacturing-sites without any care as to the pollution of water-courses has at last brought its harvest, and now some inquiry is made as to how the pound of cure may be obtained.

The City of Philadelphia is a striking example of neglect in the matter of water-supply. Attention has been called for years to the necessity of engineering-devices for securing storage and purification, but the evil influence of jobbery has aided the tendency to *laisser faire*, and the stress is increasing each year. It is, however, not an unmixed evil that Philadelphia has done nothing in the way of bettering its supply of water until the present, for it is now possible to speak positively of plans of purification and to undertake those which are demonstrably satisfactory.

It has been clearly recognized for some years that the conveyance of disease by water is due mainly to living organisms, and it is also known that these organisms have a comparatively brief life, and may be removed by several means. The mere subsidence of fine particles, sand, mud, etc., will carry down a very large proportion of the microbes, and by the use of a coagulant such as alum, a further purification will be attained. In fact, as far as surface-waters are concerned, it is generally found that when quite clear they are but little contaminated.

Experiments on filtration have been carried on for many years, but it was not until accurate bacteriologic determinations became possible that the inferences from experiments could be relied upon. The earlier observations recorded merely such separation of suspended matter as might be detected by the naked eye or indicated by analysis; but the essentially dangerous ingredients in water mostly elude both of these methods.

Culture of microbes in solid media affords the means of studying the effects of storage and filtration. It is admitted by most competent authorities that mere microbe-counting is far from constituting a reliable means of determining the safety of a water. To take a little water from a river or lake, mix it with sterile nutritive gelatin, place it in an incubator for some days, and then count the visible colonies will give a result of no value. If, however, repeated and duplicated cultures are made under constant conditions, with samples before and after specific treatment, storage, filtration, precipitation, etc., results are obtained which, even if affected (as they generally are) by a large constant error, are closely comparative. This is the work that has been done for the last few years and is still going on in several parts of the world.

Outside of the practical operation of filtering-systems in many cities, the work of the Massachusetts State Board of Health is most valuable. This work was carried on for several years in the laboratory upon so large a scale that the Board felt justified in establishing it in practice, and under its auspices several towns have been supplied with systems of sewage-disposal based on simple sand-filtration so efficacious that the effluent water is fit to be thrown at once into streams which serve for the supply to towns below. It must be noted that these efficient methods have been applied to actual sewage, not merely to polluted waters, and that the results are not vague or incoherent, but have been studied in many aspects. The effects of temperature, rate of operation, size and nature of the particles compos-

ing the filter, and the bacteriology and chemistry of the applied and effluent water have been noted in great detail. The process is one of sand-filtration. It has been demonstrated that sewage can be purified at the rate of two million gallons per acre per day.

The action of the sand-filter is not merely that of a strainer; biologic changes take place in it by which microbes are killed and the food necessary for their vitality destroyed.

Cities suffering from pollution of their water-supply may certainly take heart from the results just noted. Philadelphia, for instance, has an abundance of water within its own boundaries, but neither the Schuylkill nor the Delaware is of constantly satisfactory purity. With the proper filters and storage-reservoirs both these streams could be utilized, and the figures cited would show that a filter area of fifty acres would purify the water under the worst conditions at the rate of more than one-hundred million gallons in twenty-four hours.

It is further to be noted that in the course of the studies made by the Massachusetts Board it has been found that the storage of purified water can be safely carried out. Such water does not become objectionable in taste or odor. The comparatively extended storage-facilities that Philadelphia now possesses will be available for holding the filtered water, and filters may be treated at convenient points without reference to levels, as it is easy to pump into the distributing-reservoirs.

This is not the place to enter upon estimates of cost or suggestions of construction, but a single calculation will perhaps be of interest. The number of deaths annually from typhoid fever in Philadelphia is, in round numbers, six hundred. This means certainly six thousand cases, and we will not be in error in assuming an average loss of one hundred dollars for each case. This would make a total cost of six hundred thousand dollars per annum. It would be rash, perhaps, to claim that filtered water would prevent all these cases, but the experience of London, Munich, and Berlin would justify the assumption that four-fifths of the cases would be prevented. This would give a net saving of nearly five hundred thousand dollars, which would doubtless far more than exceed the interest-charge upon the constructions required. Outside of this "business" view, it must be remembered that typhoid fever largely affects adults at the period of greatest usefulness and when family ties are most precious and endearing. Filtration and storage of the waters at its gates are the methods of securing to Philadelphia a pure water.

EDITORIAL COMMENTS.

The Transmission of Tuberculosis from Mother to Fetus.— Since the demonstration of the bacillary origin and the etiologic unity of tuberculous processes, former views as to the hereditary transmission of the disease have undergone rather radical change. It has been assumed that what was transmitted from the tuberculous parent to its subsequently infected offspring was a peculiar, indeterminate depravity of tissue that facilitated the lodgment and multiplication of the effective causative factor, the tubercle-bacillus. Nevertheless, the possibility of direct transmission, in some cases, from mother to fetus, as occurs in the case of other infectious diseases, such as scarlatina, smallpox, yellow fever, and the like, could not be excluded. The explanation of cases of this category, and the determination of the mode of transmission, were for a time matters of no little difficulty. A sufficient number of observations, both in lower animals and in man, have now accumulated to show that the fetus may become infected by the mother through the medium of the placenta. Thus, BIRCH-HIRSCHFELD and SCHMORL (*Ziegler's Beiträge*, B. ix, S. 429; see the NEWS, July 11, 1891, p. 48) found in one case tubercle-bacilli in the placenta, in the intervillous spaces, in and between the epithelia of the villi, in the lumen of divided chorial vessels, and in capillary vessels of the fetal liver, and three guinea-pigs inoculated with pieces of fetal tissue became tuberculous. Characteristic lesions could not be discovered in the fetus, although several nodules were found in the placenta. Two additional contributions of a most suggestive nature have been made to this subject by LEHMANN. The first case (*Deutsche medicinische Wochenschrift*, 1893, No. 9, p. 200) was one of miliary tuberculosis occurring in a woman with a strong family history of tuberculosis and in the eighth month of pregnancy. The first physical evidence of the disease showed itself as a tubercle of the choroid. After death, involvement of lungs, pleura, kidneys, liver, spleen, the cerebral meninges, and choroid, was found, while in the pons and right cerebral peduncle there was an area of recent softening; the peritoneum and intestines were uninvolved. In the placenta, in three or four situations, were found circumscribed, round, gray nodules, as large as millet-seeds, both upon the uterine surface, and somewhat more deeply. Upon histologic and bacterioscopic examination these nodules proved to be classic tubercles, containing giant-cells and tubercle-bacilli. The fetus, which was dead, presented no characteristic lesions. The second case (*Berliner klinische Wochenschrift*, 1894, No. 26, p. 601) occurred in a woman suffering with chronic pulmonary and laryngeal tuberculosis. The child died ten days after birth, but no tuberculous lesions were demonstrable. Careful examination of the placenta, however, disclosed, both in its fetal as well as its maternal portions, the presence of tubercles having a characteristic histologic structure and containing tubercle-bacilli. These observations are of extreme interest and of great importance. They suggest, at least,

one mode of transmission of tuberculous disease, which may be more common than observation has hitherto shown it to be, for, unless carefully looked for, the placental lesions may readily be overlooked. The demonstration would become conclusive with the exhibition of fetal lesions.

The Unauthorized Renewal of Prescriptions.—In a communication that appears in a recent number of the *American Journal of Pharmacy* a graduate in pharmacy takes the ground that it is optional with the druggist whether or not he shall renew a prescription, even though this be accompanied by a request from the prescriber that it be not renewed without special authorization. He quotes pharmaceutic authority that such a request ("command" it is designated) on the part of the prescriber is "both useless and presumptuous." Useless it may be with a certain class of druggists, but certainly not presumptuous, for surely the druggist would not undertake to instruct the physician in the arrangement of the contents of his prescription, and the character of the directions is not less important than the quantities of the constituents. It is admitted that there is some danger in the renewal of certain prescriptions, such as those that contain poisons and drugs the use of which is likely to lead to the formation of habits, and that there is possibility of abuse with regard to others, such as are intended for common ailments, and may be transferred from one person to another, but the privilege of renewal, it is maintained, resides with the druggist, although this particular writer avers that he individually has always respected the physician's request. To do otherwise would be nothing less than a breach of confidence. Even the renewal of prescriptions in the absence of specific instructions is for the druggist to usurp the position of the physician in the treatment of the case, and to assume that the former is as cognizant of the therapeutic indications as the latter. We do not care here to enter upon a discussion of the hackneyed question of the ownership of the prescription, but if any druggist proved so faithless as to ignore our printed, written, or verbal request as to the renewal of prescriptions, we should feel called upon to warn our patients against dealing with so dishonorable and untrustworthy a person. Counter-prescribing, nostrum-dispensing, and indiscriminate renewal of prescriptions are evils of which the pharmaceutic profession were well rid, but the failure to observe the explicit instructions of the prescriber would be a breach of faith that could not be condoned and would not be tolerated. With equal right the druggist might in his judgment change the proportions, or the quantities of the ingredients, or even the ingredients themselves. We can can scarcely believe, however, that there is any considerable number of pharmacists who would prove themselves so unworthy of confidence as to fail in the matter of prescriptions to comply with any legitimate request on the part of the physician, and surely the desire to control the treatment of a patient for whose welfare he assumes the responsibility cannot be considered as otherwise than legitimate.

The Proprietary-medicine Evil.—In an article in a recent number of the *Bulletin of Pharmacy* a contributor from Pennsylvania offers certain suggestions looking to the correction of what is known in the drug trade as "cutting"—that is, the selling of nostrums and other articles of their class below established prices. The first proposition is to so amend the trade-mark laws as to abolish the right of proprietorship in medicine or medicinal preparations. The second proposition recommends the enactment of a law making it an offense punishable by fine or imprisonment, or both, for any person to sell or offer for sale any so-called patent or proprietary remedy the sworn formula of which is not registered with the Secretary of the State Pharmaceutical Examining Board, and which shall be open to inspection, unless such preparations, under certain restrictions, are prepared by a citizen registered under the State pharmacy law. It is further provided for that the manufacture or sale of proprietary or so-called patent medicines be allowed if the same be shipped outside of the Commonwealth. We can cordially indorse the first proposition and the first part of the second. The former would make the other measures unnecessary, except in so far as applies to preparations of foreign manufacture. We fail, however, to see the equity and the virtue of the condition that would permit the manufacture or sale of nostrums, providing they are disposed outside of the Commonwealth. The only way to eradicate the nostrum-evil, and with it the "cut-rate" evil, is to absolutely forbid the manufacture and sale of preparations whose constitution is kept secret and is not controllable by proper authority. The disease is a serious one; palliative measures will not suffice; the required remedy must be a radical one.

REVIEWS.

The Theory and Practice of Medicine. Prepared for Students and Practitioners. By James T. Whittaker, M.D., LL.D. New York: William Wood & Co., 1893.

The author of this book states in his preface that the most work has been put upon the infectious diseases. We had been prepared for this by the previous writings of Dr. Whittaker, as well as by the dedication of the present book to Drs. Robert Koch and George M. Sternberg. In looking over its pages we are disposed at first to question the advisability of devoting almost the half to infectious diseases, but as the author includes many affections commonly described with the diseases of special organs, the departure from the customary distribution of pages is not in reality as great as would at first seem. This attempt to include all infectious processes in one part, whether affecting individual organs or the general system is, perhaps, most scientific, but has many practical disadvantages.

It is true that croupous pneumonia seems to be an infectious disease, but in its clinical relations and in its treatment it stands so near to broncho-pneumonia that we are inclined to question the advisability of separating the two. The zeal to fully round the subject of the infections has led the author to include hay-fever, which, according to his own description, is not an infection at all. Syphilis is wisely included; but gonorrhea seems to us more properly a surgical disease.

The chapters on the diseases of the digestive system are clear and practical. The discussion of functional and

neurotic disorders of the stomach might have been more extensive, however. We turn with some interest to the treatment of appendiceal and cecal inflammations, but find the author far more conservative than the majority even of our medical teachers, not to mention surgeons.

The following statement may be fairly questioned: "Purgation which secures osmosis is beneficial in salpingitis, but injurious in typhlitis. Where the bowel is itself inflamed, purgation is bad practice." Doubtless there are cases in which salines may not be used; as surely, however, there are others in which this treatment far outranks opium in efficiency.

Among the pulmonary diseases capillary bronchitis and catarrhal pneumonia are separately described. This is rather retrograde teaching. Modern pathology tends to the identification of these conditions.

The subsequent chapters, on Circulatory Diseases, Diseases of the Blood, of the Urinary Organs, and of the Nervous System, are all clearly written and interesting.

On the whole, this book is a satisfactory expression, of moderate size, of the medicine of to-day; but in places, we fear students will find difficulties that will lead to misunderstanding. It seems scarcely advisable to call pseudo-leukemia "a subvariety of leukemia" in a text-book, though some writers have made this claim in controversial papers. We cannot subscribe to the following too minute division of the hemorrhagic diathesis: "The hemorrhagic diathesis is sometimes inherited, but is usually acquired. When inherited, it must be distinguished from hemophilia, which is transmitted only in certain directions." The statement that locomotor ataxia "may follow any acute infectious fever, especially diphtheria," may be true, but the pseudo-ataxia of post-diphtheric palsy should have been alluded to in this connection, and doubtless this is generally mistaken for ataxia. In several other places we notice similarly lax expressions, and call attention to them because, though they may be accurate, they will probably confuse students of medicine, and to this extent mar an otherwise commendable work.

Syphilis in the Innocent (Syphilis Insontium) Clinically and Historically Considered, with a Plan for the Legal Control of the Disease. By L. Duncan Bulkley, A.M., M.D., Physician to the New York Skin and Cancer Hospital, etc. Pp. 398. New York: Bailey & Fairchild, 1894.

The subject is an important one viewed from every light, and has been handled by the author in a masterly and practical manner. It is shown very conclusively, in the first place, that syphilis is not necessarily a venereal disease, but may be acquired innocently, in numerous ways, by any man, woman, and child. This is not only pointed out, but is illustrated by many clinical cases. The non-venereal aspect of the disease, and the numerous modes by which the virus may be conveyed from one individual to another, contribute the theme with which the greater part of the volume is taken up. A unique classification of the modes of infection is given, which includes over one hundred methods of transmission, grouped under three main heads: 1. In connection with household and industrial life. 2. In the case of children. 3. In professional pursuits.

One of the most interesting and valuable portions of the book is the very complete and carefully compiled chapter giving a synopsis of facts arranged in accordance with the classification of modes of infection. Thus, here are collected and classified all the cases that have been reported in which the disease was conveyed by such ways as lactation, accouchement, circumcision, vaccination, and eating and drinking from the same utensils. Infection from tobacco-pipes, surgical instruments, wearing-apparel, and many other articles is referred to. Infection by contact of finger is also illustrated by cases.

The subject of syphilis in the infant is one of the most carefully elaborated and suggestive in the book, and is worthy of attentive consideration. The modes by which the virus may be conveyed to the child are incredibly numerous, and are supported by the observations of many well-known syphilographers.

By far the most original and important chapter concerns the legal control of the disease. The author justly contends that the public health demands that individuals should be protected against this malady, which affects the innocent and guilty alike. The disease should be placed under the control of Boards of Health. It should be under legal restrictions quite as much as other contagious diseases.

Tarnowsky, a Russian authority, gives the case of one syphilitic woman who contaminated no less than three hundred men within a period of ten months. It should be regarded as a criminal offence to transmit the disease wittingly, as much so as to communicate smallpox or scarlatina. The medico-legal aspect of this question, and practical suggestions for the control of this disease, are entered into by the author, and will repay study.

An alphabetic bibliography, embracing nearly one hundred and fifty pages, and very complete, is in itself a valuable contribution to the subject. The book is replete with interesting facts bearing on the question, from whatever point the matter is viewed, and it is plainly shown that considerable syphilis is communicated in innumerable ways to the innocent.

A Hand-book of Medical Microscopy for Students and General Practitioners: Including Chapters on Bacteriology, Neoplasms, and Urinary Examinations. By James E. Reeves, M.D. With a Glossary and numerous Illustrations (partly in colors). Philadelphia: P. Blakiston, Son & Co., 1894.

If enthusiasm is communicable (that it is, there can be little doubt), no one who reads Dr. Reeves' book will fail to become imbued with a most zealous desire to use the microscope whenever possible. In glowing language the author speaks of the inestimable value of the microscope to medical science, and cites a number of interesting illustrative examples. A practical experience extending over many years (Dr. Reeves is one of the pioneers in medical microscopy in this country) enables him to speak authoritatively on methods of technique. In this little manual he has greatly simplified these, and with the book before him, anyone possessing the necessary outfit can prepare sections without much difficulty. The author's preference is for paraffin as an imbedding medium. Excellent results are no doubt obtained with it. The preparations of Dr. Reeves, some of which

it has been our pleasure to see, demonstrate this clearly enough; nevertheless, we incline to the belief that celloidin is superior. The author has devised a double stain of hematoxylin and sodium sulphindigotate, which has given him excellent results. He has also elaborated a new stain for fibrin, in which safranin is employed.

The chapter on bacteriology is concise, yet comprehensive. The special method of staining the bacillus typhosus in sections will be welcomed by bacteriologists. In the section on tumors the author adopts a classification which is similar to that of Thoma. The examination of urinary sediments is treated judiciously in a chapter of nearly forty pages. In this branch of microscopy illustrations are of special value, and it is a satisfaction to note that they have been supplied with great liberality. The chapter on the blood is good, but could be made more complete by the addition of a section on the methods of staining the corpuscles.

The book distinctly fills a place in our medical literature. Its convenient size, and the abundance of valuable suggestions contained in it, will, in our opinion, make it popular with those for whose use it is designed—students and general practitioners.

The Treatment of Typhoid Fever. By D. D. Stewart, M.D., Lecturer on Clinical Medicine in the Jefferson Medical College, etc. The Physician's Leisure Library, 8vo., pp. 104. Detroit: George S. Davis, 1893.

Within the limits of this brochure Dr. Stewart has given a faithful presentation of the modern treatment of that widespread affection, typhoid fever. With a few words as to the etiology, the prophylactic measures to be adopted are first succinctly pointed out. Then the general management of the case is fully considered, and, rightly, the first place is given to cold bathing according to the method of Brand, which is lauded in the highest terms, in entire accord with the views of those who have had the largest experience with this method of treatment. So-called expectant and expectant-symptomatic treatment is condemned, while a strong indorsement is given to the antiseptic treatment of the disease. Brief reference is also made to the biologic treatment—*i. e.*, the use of products of the typhoid and of other bacteria. The concluding section of the book is devoted to a consideration of special symptoms and complications. The book is admirably written and cannot fail to be of service. Upon one point, however, we must express our difference, and that is the sanction under any conditions of the use of the coal-tar antipyretics in the course of typhoid fever. The very language used on pages 78 and 79 in their recommendation is an argument against their use: "Where the cold bath is inadmissible and the pack or cold sponging alone is insufficient to keep the axillary temperature within 103° F. in a patient in whom the coincident presence of mild cerebral or cardiac symptoms indicates mischief likely to result from the toxemia producing the pyrexia, moderate doses of one of the internal antipyretics, such as acetanilid, antipyrin, phenacetin, or quinin, may be cautiously resorted to." Surely one would not wish to add to an already existing toxemia the baneful effects likely to result from the administration of such drugs as antipyrin and its congeners, and which, besides, as is elsewhere in the brochure stated, tend to interfere with the elimination in the urine of the toxic products generated in the natural course of the disease.

Essentials of Nervous Diseases and Insanity; Their Symptoms and Treatment: A Manual for Students and Practitioners. By John Shaw, M.D., Clinical Professor of Diseases of the Mind and Nervous System, Long Island College Hospital Medical School, etc. Second edition, revised. Forty-eight original illustrations, mostly selected from the author's private practice. Philadelphia: W. B. Saunders, 1894.

The fact that a second edition of this little work is called for within two years would seem to show that it has been regarded with some favor. Certainly it has merits as well as defects, some of which are almost inseparable from a work of this size. Very few changes have been made in the present edition, which contains exactly the same number of pages as the first edition, viz., 190. As the author has seen fit to append a bibliography after the description of each disease, it seems to the reviewer that reference to some of those papers which have been published within the last two years should have been made. We miss a description of myxedema, and do not find any reference to thyroidectomy as a means of treatment in Basedow's disease. The defects of the work are of omission rather than commission, and on the whole it is of unusual merit. Some of the descriptions of diseases are quite good. The student or physician somewhat familiar with one of the larger treatises on nervous diseases will, upon perusal of this compend, be able to refresh his memory on many points in a short time. Some of the illustrations are cleverly executed, especially figures 45 and 46, representing two types of melancholia. The publisher's work is well executed.

New Truths in Ophthalmology: As Developed by G. C. Savage, M.D., Professor of Ophthalmology in the Medical Departments of the University of Nashville and Vanderbilt University. Thirty-two illustrations. 8vo, pp. 152. Published by the Author, Nashville, Tenn., 1893.

This brochure discusses the obscurities that surround the physiology of extra-ocular muscle-equilibrium, and records a search into the uncertainties of the etiologic factors at work in the disturbance of such equilibrium.

The author has devoted considerable time to this rather complicated and not well-understood condition, and has given much study to its practical correction.

Dividing his subject-matter into three parts, in part first, he gives us his views and beliefs upon the harmonious and symmetric action of the oblique muscles, and shows why these muscles are made to rotate in cases of oblique astigmatism.

There are also studies in rhythmic contraction and relaxation for the purpose of developing the ocular muscles; thoughts in reference to the laws of projection; some clinical data upon heterophoria, operative procedures, etc.

The discomforting impression gained from the title-page and the preface does not invite detailed criticism, a task, moreover, that must be left to the specialists and the journals of ophthalmology.

DE LA MALADIE DE BASEDOW ET EN PARTICULIER DE LA PATHOGÉNIE. Par FREDERICK CHAMBERLAIN, Docteur en Médecine du Yale Medical School; Docteur en Médecine de la Faculté de Paris. 8vo. pp. 143. Paris: Henri Jouve, 1894.

THIS admirable monograph is a comprehensive *résumé* of our present knowledge of the subject of exophthalmic goiter. It contributes nothing original, but discusses fully modern notions of the pathogenesis of the disease (and these deal largely with the functions and derangements of the thyroid gland), although no opinion is expressed as to the preferable theory. Treatment is concisely considered, and an extensive bibliography is given.

THERAPEUTICS OF CHOLERA (Cholera Asiatica). By P. C. MAJUMDAR, M.D., Graduate of Medical College, Calcutta, India; Corresponding Member of the American Institute of Homeopathy, and Honorary Member of the International Hahnemannian Association, etc. Philadelphia: Boericke & Tafel, 1893.

VEHEMENT denunciation of the "Old School," with genuine Hahnemannian disdain for etiology and pathology, and extravagant claims for "New-school" therapeutics, contradicted, however, by the bewildering variety of remedies and indications later given, are the principal features of this book.

CHART OF THE OFFICIAL CHEMICAL SALTS, BOTH INORGANIC AND ORGANIC, OF THE U. S. P., 1890. Showing the Methods of Production, together with a Schedule of Neutral Principles and Phenols. By JAS. KENNEDY, Ph.G., M.D., Professor of Pharmacy and Dean of the Faculty of the Department of Pharmacy of the University of Texas.

THE title of this chart explains its uses and purposes. The table is taken from a treatise on the *Theory and Practice of Pharmacy and Pharmaceutical Chemistry*, by Profs. Kennedy and Morris.

SOCIETY PROCEEDINGS.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

Eleventh Annual Meeting, held at Washington, D. C., May 29, 30, 31, and June 1, 1894.

FIRST DAY—MAY 29TH.

THE PRESIDENT, DR. ANDREW H. SMITH, of New York City, made some introductory remarks, and afterward read a paper entitled "Alimentation in Pulmonary Disease." He pointed out that while feeding is important in all diseases, it seems to be especially important in lung-cases. Food may have a good or a bad effect, as it is assimilated or not. The exact mode of blood-production is not yet known, nor yet where the corpuscles are formed. For perfect assimilation of food there must be oxygenation by means of the oxygen furnished by fresh air. Unassimilated food is a direct source of irritation to the economy. For full and perfect metabolism the blood must be fully aërated. An intelligent study of pulmonary tuberculosis clearly shows the folly of overfeeding, by embarrassing the diseased lungs. As little food should be given as may be necessary.

In pneumonia the treatment has consisted in forcing food on the stomach. Such efforts to maintain the patient's strength were a mistake. Harm results from crowding the bloodvessels. Double work is thrown on the heart when such a course is adopted in pneumonia and other pulmonary diseases.

What then shall the diet be in pulmonary disease? All forms of food originally were derived from the vegetable kingdom. The flesh of animals is more readily digested than carbohydrates. Nourishment should be given in small quantities and repeated frequently, but there should be no forcing of food on an unwilling stomach. Water should be given freely. The instinctive feeling of the patient may be relied on as to what will keep the blood fluid.

In chronic pulmonary disease high nutrition is necessary, as in fibroid lung. In such cases the patients are almost bloodless. The pabulum from the food does not get into the circulation. Under these conditions hemoptysis occurs sooner or later. Respiration is interfered with and oxygen cannot enter the blood, and hematosis and the whole process of metabolism suffer. In treating such chronic cases animal food cannot be solely relied on. Digestion is often deranged, and a life in the open air is of immense value.

Dr. Smith reported good results from rectal injections of defibrinated blood, of which two ounces were injected at a time. As a rule no traces of blood were found in the stools after such injections.

Alcohol is believed to have a nutritive value in acute and chronic cases of pulmonary disease. When the odor of alcohol is found in the patient's breath he is getting too much.

DR. BOARDMAN REED, of Atlantic City, read a paper entitled "The Relation which Alimentation should bear to Oxygenation in Lung-diseases." He dwelt at length on the subject of forced feeding. He considered an excess of food as absolutely injurious. There should be a ratio between the oxygen inspired and the food ingested. When the in-take of oxygen is large, a large quantity of food can be assimilated. A patient with impaired lungs requires less food. Overfeeding simply results in injury, as the patient cannot assimilate the excess of food.

When fever is present in lung-cases rest of body is necessary, and this may be secured in-doors or out of doors. An abundance of fresh air is always essential.

Climate *per se* was not considered of so much importance in cases of pulmonary disease. The colder the air the better, if the patient can breathe it freely. Change of climate benefits many, stimulating nutrition.

DR. ANDREW H. SMITH, in reply to a question, said that it was his rule to have his hospital-patients lightly fed for a few days, as all acute febrile diseases are attended with a suppression of the digestive fluids. In a short time the body becomes accustomed to an abnormally high temperature and to the products of bacterial activity.

DR. ROBERT H. BABCOCK, of Chicago, said that there were two points of great importance—staying the waste of the tissues that takes place in pulmonary disease, and building up the body. The taking of fat lessens the demand for air. In lung-disease there is a diminished ability to absorb oxygen. Air, when fresh and cool, acts

as an antipyretic, and improves the assimilative powers of the patient.

Dr. Van Ruck, of Asheville, N. C., stated that he had noted marked improvement in cases in which defibrinated blood had been injected per rectum.

Dr. D. W. Prentice, of Syracuse, N. Y., said that the amount of carbonaceous food had to be watched. He cited the case of an asthmatic who could induce an attack at will by using a full mixed diet, and could promptly check an attack by regulating the diet and restricting it to lean meat and vegetables.

Dr. Albert L. Gihon, U. S. N., mentioned the case of a tuberculous marine who seemingly got well by working in the open air, gardening—the tubercle-bacilli disappeared from the sputum.

Dr. Glentworth R. Butler, of Brooklyn, N. Y., read a paper entitled "The Method and Value of Supervised Exercises and Diet in the Prophylaxis of Pulmonary Disease." He defined pulmonary tuberculosis as a disease of malnutrition, of microbic origin, to which certain persons are predisposed by undue vulnerability of the tissues. The remedy is comprised in climate, abode, personal hygiene, exercise and its corollary, rest, diet, etc. The patient must be given explicit directions as to how to live.

Dr. Otis, of Boston, warmly approved Dr. Butler's system. To-day, he said, modern gymnastics were applied scientifically. He quoted from his very large experience in Boston. All the exercises there were conducted by an expert. He saw fully five hundred young men yearly who underwent gymnastic training. Improvement resulted in all the cases.

Dr. John Winters Brannan, of New York City, expressed himself as strongly in favor of deep breathing and pulmonary gymnastics.

A paper entitled "The Importance of Mouth-cleanliness in the Prevention of Disease," by Dr. Clarence C. Rice, of New York City, was, in the absence of the author, read by title.

Second Day—May 30th.

A paper entitled "A Plea for the Earlier Recognition of Pulmonary Tuberculosis, and the Adoption of Proper Climatic Treatment," by Dr. H. B. Moore, of Colorado Springs, was, owing to the absence of the author, read by title.

Dr. Vincent Y. Bowditch, of Boston, read a paper entitled "Three Years' Experience in the Sanitarium Treatment of Pulmonary Disease near Boston." The observations were made at the Sharon Sanitarium near Boston, an institution intended for working-women, the majority of patients being shop-girls.

An abundance of sunlight and pure air are provided for; every room is freely ventilated. Broad piazzas surround the building, and the patients are kept out in the coldest of weather. No carpets or rugs to entangle dust are used. The cleaning is done by passing damp cloths over the wood-work and modern sanitary precautions are taken.

Of 48 cases, 8 had bronchitis and the remaining 40 various forms of pulmonary tuberculosis; 10 had been discharged with the disease arrested. No case was said to be cured. Most of the 10 had been away for from eighteen to twenty-four months and reports from them were regularly received. Of 8 arrested cases 7 showed excellent results. In only 3 of these were bacilli to be found. In many cases the bacilli were not found, although the patients presented other evidences of pulmonary tuberculosis, such as cough, hemorrhage, expectoration, malaise, and night-sweats.

One patient that had been under care for two years had gained 28 pounds in weight. Another that had cough and hemorrhage had gained 14½ pounds in weight in four months.

Bacilli had been found in six cases classed as improved.

Dr. Roland G. Curtin, of Philadelphia, spoke of observations made in the Philadelphia Hospital in the wards for tuberculous patients. In 1888–1889 the sputum of these patients contained tubercle-bacilli. In 1890, influenza appeared with the result that one-half of the old cases died. In 1891, of 28 cases, the sputum of 15 contained no tubercle-bacilli. In a number of post-mortems made, most careful examination of the tissues failed to disclose the presence of tubercle-bacilli.

Dr. Roland G. Curtin, of Philadelphia, read a paper entitled "Creosote, Guaiacol, and Benzoyl of Guaiacol in Phthisis." He gave a *résumé* of his experience with the several agents named, as well as the subcutaneous injection of phenic acid. The latter was very painful. Beechwood creosote and guaiacol have chemically much in common. Some patients can take large and others but small doses of creosote. Those that bear it best, as far as the stomach is concerned, show increase in weight. In acute pulmonary tuberculosis, with high temperature, no benefit was observed to result from guaiacol. The class most benefited is that whose members present slight fever and poor digestion. Dyspepsia may be cured by phenic acid. Guaiacol is used in pill-form. Guaiacol benzoyl was found to act much the same as guaiacol, and certainly no better.

Dr. A. L. Loomis does not believe that the agents named exert any special action. In many cases patients seem to do just as well without drugs. In a certain class these improved digestion.

Dr. Van Ruck, of Asheville, S. C., said that four years ago he had used creosote hypodermatically. The injections caused much pain, but had no appreciable effect on the tubercle-bacilli. Creosote is beneficial in bronchial and gastro-intestinal cases.

Dr. W. M. Gibson, of Utica, N. Y., had found that creosote had an effect on the blood, moderate doses inducing an increase of the colorless corpuscles after a meal, thus favoring a better phagocytosis.

Dr. Elsner, of Syracuse, N. Y., said that in both hospital and private practice he had obtained good results with creosote. He dwelt on the difficulty in making an early diagnosis in tuberculosis, and pointed out that the sputum does not become tuberculous until there is a cheesy infiltration of the lungs. There must be breaking down of pulmonary structure for tubercle-bacilli to find their way into the sputum.

Dr. A. L. Loomis said that he had found tubercle-bacilli in the sputum in the absence of destruction of tissue. He referred to the case of a young man, who two years ago had quite a profuse hemorrhage while undergoing examination. Specimens of the blood and expectoration were examined, and a large number of

bacilli found, although careful physical examination failed to disclose evidences of pulmonary disease. The hemorrhage was repeated for three or four days. The man now seems well. Bacilli may lodge in the bronchi without entering the lung-tissue, while they may gain entrance into the lungs through the lymphatics and the bloodvessels.

Dr. Elsner thought that in the case cited by Dr. Loomis there might have been previous tuberculous infiltration and necrosis in the ruptured vessel.

Dr. Glasgow, of St. Louis, deemed creosote most valuable. He dissolved the creosote in a little whiskey, and had the solution mixed with cream and milk. He got excellent results.

Dr. Frederick I. Knight, of Boston, read a paper entitled "Shall Anything be Done by Legal Authority to Prevent the Spread of Tuberculosis." He pointed out that although twelve years have passed since the real nature of tuberculosis had been made public, but little seems to have been done to prevent its spread.

A paper entitled "Further Reports of Cases of Phthisis Treated at Colorado Springs," by Dr. S. E. Solly, of Colorado Springs, was in the absence of the author read by title.

Dr. Knight offered the following preamble and resolution:

"*Whereas*, The American Climatological Association was founded, among other objects, to promote the study of the nature and treatment of diseases of the respiratory organs; and

"*Whereas*, Tuberculosis is the most fatal of such diseases; and

"*Whereas*, Modern research has placed this disease among the infectious, and hence, to some extent at least, among preventable diseases;

"*Resolved*, That this Association strongly recommends all Boards of Health of this country to adopt measures tending to the restriction of the disease."

Third Day—May 31st.

Dr. Leonard Weber, of New York, read a paper entitled "The Condition of the Heart in Diabetes, and its Relation to Diabetic Coma." He reported sixty cases of diabetes mellitus; the majority were over forty five years old, and the larger number were in women. Two cases had occurred in children; one in a child aged twelve, following scarlatina; death ensued three months after the appearance of the disease; in the second child the symptoms followed the excessive use of potassium bromid; recovery ensued.

Of forty cases in advanced life there was none of recovery. The duration of the disease was from three to twenty years. In a number of cases it averaged ten years.

The causes of death were varied. In some fatal pulmonary complications developed; in others, disease of the kidney. Half the cases died in sub-acute coma. In these the heart was overworked and exhausted. Such cases often presented arterial sclerosis, and in them the odor of acetone in the breath was very marked.

Syncope appeared first, and was speedily followed by cardiac failure. Heart-disease is not so rare in these cases.

Neuro-muscular disease may follow diabetes—*e. g.*, fatty degeneration of the heart, etc. Doubtless the poisonous action of the ptomaïns has an influence. Some cases present gastro-intestinal symptoms. Again, the disease may be associated with chronic interstitial nephritis. The diet in such cases requires careful study.

The disease is protean in its manifestations, and every case should be made a special study. It is often associated with disease of the heart and brain and with posterior spinal sclerosis. The therapeutic indication is to reduce the glycosuria as much as possible.

Dr. Weber employs rest and massage. He attempts to get rid of the sugar by the usual alkaline treatment. If soda-solutions do not agree, he gives opium in some cases, and watches its effect on the heart and stomach. He thinks well of the method of Schott.

In cases of diabetic coma it is most important to evacuate the bowels and fill the lower colon with an alkaline solution.

Dr. Robert H. Babcock, of Chicago, read a paper entitled "Report of Cases of Chronic Heart-disease Treated by the Schott Method of Baths and Gymnastics." The baths are cool, saline, and carbonated, and owe their efficacy to chlorids of sodium and calcium. They are given at temperatures ranging from 92° F. in the beginning of the course to 87° F. later on. At first the bath lasts but five or eight minutes, and as the course proceeds finally reaches a duration of twenty minutes. The baths are given daily for three days, and omitted on the fourth. Every seance is followed by an hour's rest in bed, the patient being covered up warmly and permitted to sleep if so inclined. Such a balneologic course lasts about seven weeks, and then may be repeated after an interval of a month or so if advisable. The baths exercise a powerful influence on the heart, and therefore have to be ordered in strength, temperature, and duration in accordance with the indications present in the individual case.

From sphygmographic tracings taken before and during the bath the conclusion was deduced that these baths act on the heart similarly to digitalis. On the bloodvessels, however, their action was that of a vasomotor dilator rather than constrictor. At all events, whatever be their mode of action, they slow and strengthen the pulse, render it more regular when it is irregular, cause demonstrable diminution in the size of a dilated heart, and improve the character of the sounds if they are weak or impure.

The light exercises of the trunk and extremities that form a valuable part of the Schott method of cardiac therapeutics exert the same kind although not the same degree of effect as the bath. The peculiarity of these gymnastics lies in the fact that an attendant applies gentle resistance to the movements made by the patients.

Since November 1, 1893, Dr. Babcock has subjected nineteen unselected cases of cardiac disease to this form of treatment with most gratifying results. Thirteen received a full course of treatment, and of this number nearly all experienced more or less benefit. Improvement was generally noticed, first, in relief of dyspnea and of cardiac pain and discomfort. No medicines were administered except occasionally a mild laxative or some other simple remedy to meet a particular indication of transient disturbance.

Advanced degeneration of the cardiac muscle or vas-

cular system, as aneurisms and pronounced arterio-sclerosis, contra-indicate this form of treatment.

Dr. W. C. Glasgow, of St. Louis, read a paper entitled "A New and Distinguishing Sign of Latent Aneurism of the Aorta," consisting in the presence of a systolic bruit in the brachial artery. The patient extends the arm at a right angle to the body, and the auscultating ear is placed over the brachial artery, where a vibration of the artery, or a bruit, is heard in case of aneurism of the aorta. In no instance had the observation been confirmed by post-mortem examination.

Dr. J. B. Walker, of Philadelphia, related that he had noticed musical murmurs in the post-tibial which he had not associated with aneurism.

A paper entitled "Musical Nomenclature in Physical Diagnosis," by Dr. J. Hilyard Tyndall, of New York, was, in the absence of the author, read by title.

Dr. Charles E. Quimby, of New York, read a paper entitled "Ozone in Phthisis, with Special Reference to the Pneumatic Cabinet." He said that for a year his remedial agents in pulmonary tuberculosis consisted of alcohol, oil of cloves, and creosote.

He dwelt at length on the powerful oxidizing properties of ozone which he described as a stimulant to mucous membranes and a pulmonary antiseptic.

The use of these agents induces a prompt reduction in temperature and yields a result equivalent to climatic influences.

Fourth Day—June 1st.

Dr. Guy Hinsdale, of Philadelphia, read a paper entitled "The Comparative Rarity of Pulmonary Tuberculosis in the Highlands of Pennsylvania and the Adjacent Counties of New York." (See The Medical News, August 4, 1894.)

Dr. Samuel A Fisk, of Denver, Colo., read a paper entitled "Meteorological Data of Colorado." He referred at length to the many and well-known advantages of Colorado: its high elevation—one mile above sea-level; dryness of air, etc. He placed Denver among the cool climates. The winds were from the south and were dry.

Hon. Mark W. Harrington, Chief of the Weather Bureau, Washington, read a paper entitled "Sensible Temperature." By "sensible temperature" he meant that felt by the skin. On it depends the sense of comfort or discomfort in hot weather. High shade-temperature does not necessarily mean discomfort, if its dew-point is low. This temperature may be 127°, but the temperature felt by the skin may be 45° lower.

Dr. Judson Daland, of Philadelphia, read a paper entitled "Beri-Beri." He reported several cases studied at the Philadelphia Quarantine-Station. These occurred among a mixed crew on a vessel from the East Indies. The symptoms of the disease were attributed to a peripheral neuritis.

Dr. Albert L. Gihon, Medical Director U. S. N., deemed beri-beri a disease of malnutrition.

Dr. William H. Daly, of Pittsburg, expressed the opinion that the disease might be due to ptomaïn-intoxication as a result of digestive fermentation.

Dr. William H. Daly, of Pittsburg, read a paper entitled "Some Practical Observations on So-called Malaria." He concluded that the malarial germ is one of the infusoria, transmitted by impure water, in lowlands and swamps. The habitat of the germ is probably in the soil. The point was made that in malarial districts all escaped who drank pure cistern-water.

Dr. Wolfred Nelson, of New York City, related that in the island of Cuba gangs of men that slept by day and went to work at night on a full stomach never developed malaria; while the day-gangs, that slept at by night, when fogs and vapors were prevalent, developed malarial fever.

A paper entitled "Shock in Acute Disease," by Dr. John H. Musser, of Philadelphia, was, in the absence of the author, read by title.

Dr. W. C. Glasgow, of St. Louis, read a paper entitled "The Physical Signs of Cellular Edema of the Lungs considered in their Relation to the Pathological Changes." He maintained that cellular edema of the lungs is due to sepsis. The signs of the condition are at times very perplexing and contradictory. Infiltration occurs suddenly, and resolution may take place with equal suddenness.

Dr. Robert H. Babcock, of Chicago, said that the condition described by Dr. Glasgow resembled a form of broncho-pneumonia described by Dr. Delafield. The disease was in the walls rather than in the bronchioles.

Dr. Wolfred Nelson, of New York City, presented a series of photographs of the Grosse-Isle Quarantine-Station, in the St. Lawrence, below Quebec. He described the situation as an ideal one—an island in the lower St. Lawrence, twenty-four miles below Quebec, four miles from one and six miles from the other shore. It is a Canadian Government-Station. Forty buildings can be used for the reception of patients of all classes, from saloon to steerage. In a crisis, 3000 can be accommodated. It is the most extensive and modern quarantine-plant on this Continent. In twenty-four hours the effects of 1000 immigrants can be rendered absolutely sterile or safe.

Dr. F. Montizambert, the Superintendent of the Canadian quarantines is in charge. He has devoted his life to the work, and has made a study of all the American and Continental Stations. He is assisted by a large staff of trained assistants—medical and lay. Reference was made to the good work in sanitation done in this country by Dr. A. N. Bell and Dr. Joseph Holt.

AMERICAN DERMATOLOGICAL ASSOCIATION.

Eighteenth Annual Meeting, held at Washington, D. C., May 29, 30, 31, and June 1, 1894.

Dr. George T. Jackson, of New York, read a paper upon "Thyroid Feeding in Diseases of the Skin," reporting three cases of xeroderma, one of ichthyosis, and one of dermatitis exfoliativa that had been treated with the desiccated powder, beginning with two grains at a dose in capsule. This was gradually increased. Unpleasant symptoms usually followed, such as headache, nausea, vertigo, etc. The skin, however, showed increased moisture and suppleness. No cure was obtained. Dr. Jackson said that he was not inclined to pursue the method further, as the results are not brilliant, and grave symptoms may appear.

Dr. Fox agreed with this conclusion.

DR. HARTZELL stated that he had seen no good effects from the use of preparations of thyroid gland.

DR. STELWAGON related that he had failed to secure benefit in psoriasis, dermatitis exfoliativa, and in pityriasis rubra pilaris. He had seen edema of the legs produced.

DR. HYDE had experimented on ten psoriatics; two showed decided improvement, two were made very ill, and in the rest no benefit could be observed. He had to record, however, improvement in a case of thyroid cachexia. He begins with a maximum dose and gradually decreases.

The next paper was by DR. G. H. FOX, of New York, on "Folliculitis Decalvans." This term he thought should include the greater number of those rare affections of the scalp which would appear to belong to the same general class of disease, but which are unquestionably not the same as the alopecia areata with which we are familiar. At first there is hyperemia and the areas are tender. The follicles become plugged up, and in the the more advanced stages depressed, pigmented cicatrices appear, with outlying separate follicles, indicating an extension of the disease to neighboring parts. These affected follicles become grouped and undergo the same changes, resulting in scar-tissue and consequent permanent baldness. Here and there nodules undergo suppuration, but acne is not a good term for the condition, although the term keratosis might be applicable to the follicular plugging. A ten per cent. salicylic ointment was recommended.

DR. ZEISLER had seen several such cases and called attention to the roughness of the patches from the broken off hairs.

DR. HYDE spoke of the possibility of tuberculosis of the scalp and peculiar forms of erythematous lupus, leaving cicatrices as they spread over the head. The disease cannot be simply inflammatory, or it would not result in scar-tissue. He reserved his opinion as to its true nature. Unguentum hydrargyri ammoniati had given the most satisfaction in his cases.

DR. SHERWELL had thought the disease might be a discoid lupus erythematosus.

DR. CANTRELL, of Philadelphia, read the next paper, on "Favus of the Head and Body," occurring in a young boy, showing scattered areas over the whole cutaneous surface coming on after the scalp had been affected for two years.

DR. JACKSON spoke of a case of favus of the body in which an herpetic-like ring was seen surrounded by typical cups.

DR. ZEISLER mentioned an instance presenting primary the lesions of favus upon the feet, occurring in a stableman accustomed to walking bare-footed about a stable infested with mice which probably had the disease.

DR. WIGGLESWORTH said he had experimented with Dr. White and had only succeeded in reproducing favus when the fungus was pricked into the hair-follicles.

DR. HYDE said almost any treatment was of benefit, but none could be called curative. A change from one form of treatment to another had given him the best results.

DR. SHERWELL spoke of several cases in a family in which the mice, as well as the dogs, were the sources of contagion. In one of the cases the lesions were upon the face.

DR. WHITE had seen favus of the glans penis. He contended that the disease is not an incurable one, as the numerous instances of baldness, without any sign of remaining disease, seen among Russian emigrants testified. In his practice there was one positive cure dating back fifteen years.

DR. HARTZELL mentioned Hardy's case of favus of the glans penis, in which, by means of a strong lens, a hair-follicle was found, showing it to be no exception to the rule that the part must be a hairy one to favor the growth of the fungus.

DR. ALLEN corroborated what Dr. White had said about cured instances in Russian Poles, although he had seen many instances among these immigrants in which the disease that had caused the baldness was more likely folliculitis decalvans. Until recently he had not had a case of favus of the body in his own practice, but he is now treating a mother and two children for favus of the scalp, and in one there is a lesion upon the lobe of the ear.

DR. W. T. CORLETT, of Cleveland, then read a paper upon "Cold as an Etiological Factor in Diseases of the Skin." A series of photographs were shown of cases presenting for the most part rounded lesions upon the forearms, backs of the hands, etc., which came on year after year, as a rule when the cold season was approaching, or in the winter time. Dr. Corlett believed that the influence of the climate in which his practice lay played a very important part in the production of this affection. The patches were mostly erythematous, slightly scaly, and showing little or no tendency to spread. Low temperature, air in motion, and humidity, were considered essential to its production. Though resembling in some instances herpes and in others eczema, Dr. Corlett looked upon the affection as a disease *sui generis* of the frost-bite variety, and would call it dermatitis hiemalis. Change of climate had given the best results, though suitable topical applications, and especially glycerole of tannin, had acted well.

DR. SHERWELL said some of the descriptions given suggested angiokeratoma.

DR. HYDE said all were familiar with the great influence of cold in some skin-affections, and he referred to his paper read at the Paris Congress on "Pruritus Hiemalis." Many other factors may be present. Lesions of the hands are always suggestive of infective diseases, and the gloves left over from the preceding cold season might contain the infective agent. He recommended parasiticides.

DR. WHITE would diagnosticate eczema if called upon to decide from the photographs. This, it is known, may be aggravated by cold.

DR. FORDYCE, of New York, followed with a paper on "Adeno carcinoma of the Skin starting in the Sweat-glands." A number of different pathologists have described cases of adeno-carcinoma originating in a a sweat-gland, but the number of cases in which this point of departure had been proved was very limited. In the present instance the growth had started as a proliferation of the columnar cells lining the sweat-glands, breaking through the membrana propria and infecting the surrounding connective tissue. The intra-cellular bodies which are looked upon by many pathologists as the cause of carcinoma were demonstrated, and a

belief in the parasitic nature of the disease expressed, though the exact etiology has not yet been made clear.

Dr. Stelwagon then read a paper upon "The Question of Contagiousness of Molluscum Contagiosum." A review of the literature of the subject was given, and the instances of seeming contagion or transfer from one individual to another were enumerated. In this way a large and convincing mass of evidence was presented and analyzed. The examples of spread in public institutions were very abundant. Accidental inoculations, as well as those experimentally produced, were related. The molluscbodies, it was thought, furnished the medium of contagion.

Dr. Hartzell did not look upon the so-called mollusc-corpuscles as external animal cells, but rather as altered cells of the body.

Dr. Zeisler had personally never seen a convincing instance of contagion.

Dr. White thought proof of the parasitic nature of the bodies essential.

Dr. Duhring believed the clinical evidence sufficient for us to regard the disease as surely contagious.

Dr. Hyde had never seen an instance of transfer from individual to individual.

Dr. Allen referred to an accidental inoculation upon his own finger after operating on a case. Two punctate tumors developed, and on removal, the microscope confirmed the diagnosis. Both auto-inoculation of neighboring parts and transfer to others were more active if a tumor had acquired some size, had softened, and perhaps suppurated. While small they seemed of little danger to others and were readily cured.

Dr. Fordyce showed the bodies in the cells, and one in the act of escaping. He said that while protozoa are not gaining in favor, as far as psorospermosis is concerned, they are as regards carcinoma and molluscum.

Dr. S. Sherwell, of Brooklyn, presented a paper on "Harlequin Fetus," relating an instance of this form of congenital ichthyosis, which is usually fatal, but which, in his case, had existed for six months already, with a prospect of the child's continuing its existence. He regarded the condition as one of defective development.

Dr. Zeisler mentioned inunction with any bland oil as a palliative measure. A cure was not to be expected.

Dr. Hartzell, of Philadelphia, presented a paper on "The Protozoa-like Bodies of Herpes Zoster," and considered their relation to those of psorospermosis. At a certain stage of the development of a zoster-vesicle certain bodies resembling protozoa are always to be found. Pfeiffer had first accurately described them, and Weigert had found them also in the pustule of smallpox. As the vesicle goes through its evolution the multiplication of the protozoa is rapid. They resemble in a striking way the epithelial cells containing coccidia found in the bile-duct of the rabbit. Dr. Hartzell had studied these bodies found in a case of recurrent zoster following the course of the sciatic, originating in traumatism. The conclusion is drawn that the appearances arise from alteration in the epithelium, and are not due to protozoa. The presumption is that the so-called psorosperms of the disease are metamorphosed cells. The enormous growth and peculiar arrangement argue for a process of vital activity, and not for one of degeneration.

Dr. White, of Boston, then read a paper entitled "Angioma Serpiginosum and Some Other Rare Dermatoses." Pityriaris rubra pilaris he looked upon as a member of the keratoses which called for special consideration. From his experience he would consider it more frequent than the statistics of the Society would seem to indicate. *Erythème induré des scrofuleux*, resembling erythema nodosum, but differing from it in its stage of softening and suppuration, when it suggested rather the gumma, was then taken up. The lesions are more deeply seated and more uniform than in erythema nodosum, and are not like bruise-marks. They may, however, be of a dusky-purple color, and those of longer duration brownish; some become depressed, leaving disclosed cicatrices, while other disappear leaving pigment-stains only. The so-called scrofulous gumma is often strongly suggested. Remarks upon multiple benign cystic epithelioma were illustrated by a photograph showing some fifty lesions in various stages upon the face. There were flat papules having the normal color of the skin, some lesions with sunken centers, others showing crusts, while some appeared as elongated ulcers. Two such were especially noticeable near the eyes, and appeared like rodent ulcers. There were no subjective symptoms. Some had taken on the ordinary features of epithelioma. A case of angioma serpiginosum had occurred in the person of a boy, the lesions extending from the right scapula to the nipple-region as a belt three inches wide. There was an elevated creeping margin to the lesions, which was of uniform breadth and firm and smooth. The name given by Crocker was considered more appropriate than that originally suggested by Hutchinson, infective angioma. Dr. Councilman, of Boston, together with Dr. Bowen, had made histologic examinations, and they had agreed upon the name angio-sarcoma as best fitting the conditions presented.

Dr. C. W. Allen, of New York, followed with a paper on "Acquired Idiosyncrasy for Quinin, showing Peculiar Cutaneous Manifestations." A man who had previously always been able to take quinin developed his first eruption from five grains of the sulphate, and for a number of years had the same erythematous spots in the same locations whenever the smallest quantity was given by mouth, rectum, or through the skin. With the consent of the man, Dr. Allen carried out a series of experiments extending over several years, to determine if possible the manner in which the drug acted to produce this effect. The conclusion reached was that the drug affects primarily the cord in the upper dorsal region, and he thinks that this, if verified, may lead not only to a clearer understanding of certain skin-diseases of obscure origin, but may also explain how quinin acts to produce some of its therapeutic effects.

Dr. E. B. Bronson, of New York, then gave the history of "A Case of Symmetrical Cutaneous Atrophy of the Extremities." The subject of this rare condition was a male, forty-five years old. The left ankle had first become affected fourteen years ago. From here there was a gradual extension to other regions. The knees now present a peculiar wrinkling of the skin, the folds occurring in the natural lines of cleavage. In all the atrophic areas the blue vessels shine through, giving a lilac hue. These regions are more sensitive than the normal skin. The disease is regarded as spontaneous and idiopathic. The legs and lower third of the arms

are the parts most affected. The hairs have almost disappeared from the implicated regions and sweating seems to have ceased.

DR. ZEISLER, of Chicago, presented a paper upon "The Relation of Impetigo Hepetiformis to Pemphigus Vegetans." The features common to these two diseases are very striking. Both, too, occur mostly in women and begin upon a mucous membrane. The lips were first affected in a case reported. Deviations from the type must be considered possible, and a case should not be thrown out of either category because in some unimportant detail it does not correspond with the original description. For a positive diagnosis either disease must be observed carefully from beginning to end, which in both is a fatal one. Among the many points of similarity pointed out were the etiology and pathology, about both of which nothing is known. Vegetations are not always present from the outset, but appear where moisture, friction, and warmth favor their development.

DR. GILCRIST, of Baltimore, by invitation, read an interesting paper entitled "Protozoan Dermatitis." He related the first case of the kind recorded in this country. The protozoa were shown under the microscope. They were very numerous, sixty sometimes being in the field. Twenty had been found in one giant-cell. A dog had been inoculated, the same disease reproduced and protozoa being found. Dr. Gilcrist considered the bodies found as belonging to the vegetable rather than to the animal kingdom.

DR. DUHRING showed photographs of a case of generalized sarcoma sent by Dr. Breakey, of Ann Arbor.

DR. BRONSON presented a new dermal curet and comedo-expressor.

The Association then adjourned to meet in Montreal, Canada, in September, 1895.

NEWS ITEM.

The Cholera and the Plague.—It is reported that cholera is epidemic at Canton, China. The plague is still raging among the natives and does not seem to yield to treatment, the mortality reaching 90 per cent. Forty-thousand deaths are said to have occurred at Canton since March 1.

Five new cases of cholera and three deaths were reported at Maastricht, in Holland, on August 5th and 6th. Five cases and two deaths were reported at Halfweg and one death at Haarlem.

On August 7th two deaths from cholera occurred in Amsterdam and one in Dordrecht.

Three new cases and two deaths were reported in Maastricht on August 7th.

In the six days immediately preceding August 4th there were 313 fresh cases of cholera and 240 deaths in St. Petersburg. In the six days preceding July 28 there were 159 fresh cases of cholera and 83 deaths in Warsaw.

For the Department of Warsaw the reports for the same period record 394 fresh cases and 213 deaths. All these figures covered only the reported cases.

On August 7th the captain of a steamship which arrived at Gravesend from St. Petersburg reported that one of his crew died of cholera during the voyage.

BOOKS AND PAMPHLETS RECEIVED.

Primary Syphilis and Gonorrhea in Children. By B. Merrill Ricketts, M.D. Reprinted from the Journal of the American Medical Association, 1893.

Sarcoma of the Kidney: Its Operative Treatment. By Robert Abbe, M.D. Reprinted from the Annals of Surgery, 1894.

Excision of the Hip-joint in Tubercular Disease. By B. Merrill Ricketts, M.D. A Paper read before the Cincinnati Academy of Medicine, 1893.

Operative Surgery. By Th. Kocher, M.D. With one hundred and sixty-three illustrations. New York: Wm. Wood & Co., 1894.

Some Remarks on the Refractive Value of any Two Cylinders or of Two Prisms placed at Arbitrary Angles in the Trial-frame; with the Description of a new Instrument for Finding their Sphero-cylindrical or Prismatic Equivalents, and also the Prismatic Effect of the Decentration of Lenses by a Graphic Construction without Calculation. By Carl Weiland, M.D. Reprinted from the Archives of Ophthalmology, 1893.

Naso- or Retro-pharyngeal Growths. By J. Ewing Mears, M.D. Reprinted from the Transactions of the American Surgical Association, 1893.

Cleft of the Hard and Soft Palates. By J. Ewing Mears, M.D. Read before the Philadelphia Academy of Surgery, 1893.

The Early Removal of Tubercular Foci of the Bone. By B. Merrill Ricketts, M.D. Reprinted from the Journal of Materia Medica, 1893.

Etiology of Pelvic Diseases in Women and their Prophylaxis. By X. O. Werder, M.D. Reprinted from the Pittsburg Medical Review, 1893.

The Present Status of the Treatment of Uterine Fibroids. By X. O. Werder, M.D. Reprinted from the Annals of Gynecology and Pediatry, 1893.

Proceedings of the Philadelphia County Medical Society, Vol. XIV. Session of 1893. Lewis H. Adler, Jr., M.D., Editor. Philadelphia: Printed for the Society, 1893.

Antiseptic Therapeutics. By E. Trouessart, M.D. Translated by E. P. Hurd, M.D. Physician's Leisure Library. (2 vols.) Detroit: George S. Davis, 1893.

Four Cases of Brain-tumor, in Three of which Operation was Done—Two Operative Recoveries—Ultimate Death in All. By W. W. Keen, M.D. Reprinted from the American Journal of the Medical Sciences, 1894.

Operation for Correction of Deformity of the Wrist Caused by Shortening of the Radius after Fracture. By E. S. Goodhue, M.D. Reprinted from the Medical Record, 1894.

Recent Surgical Advances and their Relation to Conservative Obstetrics. By W. Reynolds Wilson, M.D. Reprinted from the American Journal of Obstetrics, 1893.

Uterine Thrombosis following Post-partum Hemorrhage and its Relation to Puerperal Infection. By W. Reynolds Wilson, M.D. Reprinted from the Annals of Gynecology and Pediatry, 1893

Critique of Macroscopic Examination of Specimens Removed in Thirty-two Consecutive Laparotomies. By F. Byron Robinson, B. S., M.D. Reprinted from the Journal of the American Medical Association, 1894.

Tait's Perineal Flap Operation. By F. Byron Robinson, B.S., M.D. Reprinted from the Chicago Medical Recorder, 1893.

Annual Report of the President of Harvard College, 1892-93. Reprinted from the Annual Reports of the President and Treasurer of Harvard College. Cambridge: Published by the University, 1894.

Conservative Surgery of To-day in Obstetrics, Abdominal and Pelvic Work. By J. G. Carpenter, M.D. Reprinted from the American Practitioner and News, 1893.

Vasomotor Ataxia: A Contribution to the Subject of Idiosyncrasies. By Solomon Solis-Cohen, M.D. Reprinted from the American Journal of the Medical Sciences, 1894.

Bureau of Education. Circular of Information No. 8, 1893. The Spelling Reform. By Francis A. March, LL.D., L.H.D. Washington: Government Printing Office, 1893.

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ORIGINAL ARTICLES.

THE COLORADO CLIMATE FOR TUBERCULOUS PATIENTS.[1]

BY WILLIAM P. MUNN, M.D.,
OF DENVER;
MEMBER OF THE COLORADO STATE BOARD OF HEALTH.

IT may be regarded as proved that tuberculosis of the lungs can not only be recovered from, but that some cases make a perfect recovery without the disease being either recognized or subjected to medical treatment. With this premise made and admitted, it is not incorrect to state that the problem of cure or arrest should assume as great importance as the problem of prevention.

The factors of the problem of cure or arrest are: (*a*) On the one hand, the resisting power of the organism and the influences or conditions that tend to modify that resisting power. (*b*) On the other hand, the virulence or activity of the specific organism causing tuberculosis and the influences or conditions that modify it, and retard or assist its development, either without or within the body.

The most influential factors, both of assault and resistance, are those of environment, and chief among the elements of environment come climatic influences. Equally important, from one point of view, is the environment of occupation, of clothing, and of personal habits; but the correction of faulty conditions in these regards, unaccompanied by climatic change, is likely to be futile in a large majority of cases. The accumulated and disastrous experience of generations of effort proves this most conclusively. Until climatic environment is made favorable, the human organism is at a disadvantage in its battle against the microörganism and those concomitants now almost universally believed to be the cause of tuberculosis.

The study of the bacillus tuberculosis and its life-history has resulted in the discovery of facts that go far toward explaining climatic influences long since appreciated, but not thoroughly understood. For example, it was early observed that the inhabitants of high, dry regions did not acquire pulmonary tuberculosis. We now know that this is because the bacillus loses its vitality forever when thoroughly dried in the direct sunlight of high altitudes. It has been observed that the children born in such regions, of markedly tuberculous parents, are to a remarkable extent exempt from tuberculosis. We now know that this is so because the elements of infection usually transmitted from parent to offspring through the air are, in high, dry regions, rendered harmless while in transit, and we know, too, that this very fact has alone finally controverted and destroyed forever the fallacious belief that tuberculosis is an hereditary disease, transmitted from parent to offspring in genesis. And if that misleading belief should ever prevail again it ought to be negatived absolutely and for all time by the army of robust, healthy, non-tuberculous men and women now in and coming to adult life in the State of Colorado, who are the children of tuberculous parents, and who have been protected from the direct contagion of their parents' disease by climatic environment favorable to their own physical development and unfavorable to the microörganism of tuberculosis.

But the prevention of the development of tuberculous disease, while the great desideratum for the coming generation, does nothing to relieve the patient now suffering from pulmonary tuberculosis. To such invalids medical science has heretofore offered small encouragement of recovery by the use of therapeutic meaures. Change of climate has been the one procedure offering most hope, but this has been recommended in an indiscriminate, or rather, an undiscriminating manner, indicative of lack of appreciation of the true factors of climatic environment that are desirable or beneficial. New countries have always been most highly lauded as places of residence for those suffering from chronic pulmonary disease, and as the country became more settled such places have, as a rule, lost their repute. In the last century New York was the popular resort for cases of this character; later, Ohio, Michigan and Minnesota, North Carolina and Georgia, attained some reputation as health-resorts for tuberculous patients, but failed to maintain their reputation. It has even been said that as this is the common lot of all newly-settled countries, so the eastern slope of the Rockies will, in time, also lose its reputation, and that tuberculosis will make its permanent habitat there also. From any such opinion I dissent. That region presents conditions other than the purely negative one, common to other newly-settled countries, of freedom from the cause

[1] Read before the Forty-fourth Annual Meeting of the Medical Society of the State of Pennsylvania, May 17, 1894.

of tuberculosis until such time as increase of population brings the cause to the country as a permanent entity.

Anti-tuberculous climatic conditions (*a*) prevent the development of tuberculosis and (*b*) exercise an ameliorating or curative influence upon already existing tuberculous lesions.

These favorable climatic conditions are as follows: (1) dryness, (2) sunshine, (3) purity of atmosphere, (4) rarity of atmosphere, within certain limits, (5) equable and moderate temperature. These favorable conditions exist in an exceptional degree and over an extensive territory upon the eastern slope of the Rocky Mountains, in the State of Colorado.

The invalid suffering from pulmonary disease finds much difficulty in obtaining from his medical adviser reliable information or valuable advice in regard to the region in which he is to seek natural conditions that will retard his disease or effect its cure. For this reason I feel that it is an eminently proper thing at such a meeting as this to state as succinctly as possible the climatic advantages of Colorado and to indicate the class of patients that my own experience has shown may be benefited by residence there.

It may not be out of place to bear my personal testimony to the fact that residence in Colorado does retard or cure pulmonary tuberculosis. As an example of the frequency of such cures I may cite the fact that there are forty physicians having offices within a block of my own residence in Denver, and of this number twelve, or 30 per cent., were tuberculous prior to coming to Colorado, but are now in vigorous health and engaged in active practice. Five more of the forty are in Colorado because their wives became tuberculous in the East; all are now in good health. While the same ratio may not hold good for our entire population, it is a fact that an unusually large number of persons formerly tuberculous, and now healthy and vigorous, are to be found in Denver and its sister cities and towns. It is not an exaggeratian to state that probably one-fourth of the population of Colorado came to the State originally because of pulmonary disease in themselves or some member of their families.

Briefly stated, the desirable climatic conditions in Colorado are as follows: 1. *Dryness.* Years ago. this element of our climate was so misunderstood and over-estimated that the whole 103,000 square miles of our area was considered to be desert land—sandy, uninhabitable, and unfertile. This misapprehension was based upon the lack of rainfall. The rainfall is, indeed, inconsiderable, especially when compared with that of the Atlantic coast and of the Ohio and Mississippi valleys. In Denver, for example, the average total annual precipitation for twenty years, which includes both rain and snow, has been but 14.5 inches; in New Haven, Conn., it is 50 inches; in Washington, D. C., 44.8 inches; in Atlanta, Ga., 55.9 inches; in Jacksonville, Fla., 56.3 inches; in Chicago, 36 inches; in New York, 45 inches; in Philadelphia, 41.2 inches; in the State of Washington there are points where the precipitation is 92 inches per annum; and in such foreign resorts as Florence, Italy, it is 41 inches; in Genoa, 47 inches; in Geneva, 32 inches; in Naples, 30 inches; and in Algiers, 27 inches. The wettest place on earth is Assam, Asia, where the average annual precipitation is 610 inches, and in 1861 it was 905 inches. The average rainfall for the whole world is said to be 36 inches per year. When these figures are considered, it is readily seen that Denver, with 14.5 inches rainfall per year, is, relatively, quite a dry location, and it must be remembered that Denver has, perhaps, the greatest amount of precipitation of any location in Colorado. In Montrose, Colorado, there is but 8 inches rainfall in the course of the year. There are certain comparatively inaccessible locations in the United States having drier climates, *e. g.*, Yuma, Arizona, with but 3 inches rainfall per annum, than which there is but one lower record for the whole world, Port Saïd, with the burning winds of the Arabian desert passing over it, which has but 2 inches annual rainfall.

The therapeutic value of a dry atmosphere is twofold: (*a*) It antagonizes the vitality of the bacillus; (*b*) it takes up more moisture from the lungs in respiration, thus removing a greater amount of the toxic results of respiration, and lessening the volume of expectoration; (*c*) it assists elimination from the skin, promotes thirst, and by thus stimulating the patient to fill his bloodvessels promotes the activity of all the emunctories.

In considering the dryness of the Colorado atmosphere, we usually speak, as I have already done, of the rainfall only. A much more valuable observation is that of relative humidity. This means the comparison of moisture actually held in suspension in the air with the amount which it can hold (complete saturation) at existing conditions of temperature and pressure. Manifestly an atmosphere of low relative humidity will more readily cause evaporation from the body, and along with the moisture thus removed go the other organic impurities resulting from respiratory oxidation. A comparison of the relative humidity of Denver and of some Pennsylvania cities and of New York City for the years 1891 and 1892, and of Denver for 1893, is here appended.

	1891.	1892.	1893.
New York City .	75 per cent.	72 per cent.	
Harrisburg . .	70 "	73 "	
Pittsburg . . .	70 "	69 "	
Philadelphia . .	70 "	70 "	
Denver	51 "	51 "	43.7 per cent.

In studying the relative humidity of different cities by months, it is of especial note that the greatest humidity of our Eastern cities is observed in July and August, when the relative humidity of Denver is at its lowest. The period included between the months of February and May is that of our greatest relative humidity, but even these months are drier than the driest months of the cities of the Atlantic coast and in the Ohio and Mississippi valleys.

Great interest attaches to this subject, and it is worthy of more extended study than is possible within the limits of this paper.

2. *Rarity of atmosphere.* This condition varies, of course, with altitude. In its 103,000 square miles of territory—an area almost as great as that of Italy, half as large as France, and seven times that of its great climatic rival, Switzerland—Colorado presents an unsurpassed range of altitude, from 3000 feet above the sea-level on the east, to 15,000 feet, among the peaks of the Rocky Mountain range. The broad, high plateau on this side of the mountains rises so gradually that, while it seems almost level, it yet attains at Denver, which is twelve miles distant from the foot-hills of the Rocky Mountains, an altitude of one mile above the sea level. The altitude of Colorado Springs is 6150 feet; that of Manitou, 6500; of Boulder, 5300; of Brighton, 4900; of Greeley, 4500; of Pueblo, 4800; of Morrison, 5700. Along Platte and Clear Creek Canons are very many pleasant little mountain-resorts at altitudes varying from 6000 to 9000 feet. Estes Park and South Park are great natural parks whose altitudes range from 6000 to 8000 feet. On the west side of the continental divide Glenwood Springs is at the same altitude as Denver, and presents natural advantages superior to the Hot Springs of Arkansas or to any of the great baths or resorts of Europe. Leadville is 10,000 feet above the sea; Cripple Creek is at about the same altitude.

This cursory statement of the wide range of altitude easily accessible, and at points providing ample accommodations for invalids, gives but the faintest idea of the range of location open to the invalid searching for an altitude best suited to his individual case.

The rationale of the beneficial effects of rare atmosphere is, of course, simple. The amount of oxygen necessary for respiration can be found at high altitudes only in larger quantities of air than at low altitudes. The effort to obtain this causes deeper inspirations, and, as a result, unused or partly solidified areas of pulmonary tissue are opened up by the natural and unstudied efforts of the organism. Theoretically there is much to fear from this effort, especially in patients who have had hemorrhages. Practically this fear has been proved to be quite baseless, except in those whose disease has advanced so far that there is not enough available air-space left in the lungs for free respiration at any altitude. Especially worthy of note is the fact that altitudes of less than 8000 feet are only exceptionally dangerous for hemorrhagic cases; and that, as a rule, if such a case does not improve at 5000 or 6000 feet, it will improve if taken higher after a time. Patients whose progress has been slow in Denver (at an elevation of 5200 feet) have improved more rapidly after a year or two, on removal to Idaho Springs (at an elevation of 7500 feet), Georgetown (at an elevation of 8400 feet), or Leadville (at an elevation of 10,185 feet).

3. *Sunshine.* Reliable sunshine-statistics have not been accessible until within the last two years. This has been partly on account of defective equipment of observers, and partly on account of defective methods of stating the results of observations. What constitutes a sunshiny day has always been a matter of dispute. In 1891 the weather-service adopted the method of making photographic notes of actual hours of sunshine. The records are now beginning to be of value, although the limited number of stations at which such observations have been taken interferes with any extensive comparison. In 1892, Philadelphia had, approximately, 2263 hours of actual sunshine out of a possible 4618 hours—*i. e.*, 49 per cent. of the possible sunshine. In the same year Denver had 2858 hours of actual sunshine out of a possible 4594 hours—*i. e*, the sun shone brightly during 62 per cent. of the time that it was possible. The difference between 49 per cent. and 62 per cent. of sunshine is relatively enormous. The actual excess of hours of sunshine in Denver over Philadelphia approximates almost two hours every day in the year. To the tuberculous patient this extra amount of sunshine means very much in increasing the daily time during which he can remain out of doors. And it should go without saying that out-of-door life is what every tuberculous patient ought to have. It is ridiculous to travel hundreds or thousands of miles for the benefit of disease by climatic environment and then to coop oneself up in rooms in which the artificially generated conditions are probably as bad as, or worse than, those of the home from which one has removed.

Many unfortunate terminations might be avoided if pulmonary invalids knew enough to take proper advantage of natural conditions. Out-door life, fresh air, and sunshine, are the great requisites, more efficient in Colorado than in most other localities in this country, but of benefit everywhere, if taken advantage of with intelligent persistence.

For this reason most Colorado physicians recommend their tuberculous patients to seek a residence in the suburbs if they remain in Denver, but as a rule to get out of the city if possible. Life on a

ranch or in a mining-camp is preferable to life in a city, if one can only secure the necessities and a few of the luxuries of life. The incipient tuberculous patient who deliberately gives up his regular occupation or profession and goes to "punching cows" for two, three, or four years, is practically certain to effect a permanent recovery, and to gain as well a unique experience as valuable to him as his restored health will be.

These observations comprise a plain statement of actual conditions existent in Colorado, and indicate advantages that will inure to the pulmonary invalid, or "lunger," in semi-facetious Western phraseology, from a residence there.

A disease so essentially chronic in its nature and progress as pulmonary tuberculosis is not susceptible of a *rapid* cure, even under most favorable climatic influences, and in individuals having large natural powers of resistance to the disease. Hence those who attempt its benefit by a change of climate must not expect a radical cure after a short residence in Colorado. It is not unusual to have patients sent us from the East, with the assurance of their home-physicians that a residence of a few months, or at the longest a year, will permanently restore their health, so that they may safely return to their Eastern homes and resume their ordinary occupations. No more fallacious idea could ever be advanced. No assurance could be so utterly unfounded. And yet we meet almost daily with invalids who have come to us holding firmly to this erroneous belief, and who persist in clinging to it in spite of all argument or of iterated or reiterated proof, simply because their physician at home "told them so."

The fact of the matter is that, although we speak of climatic influences effecting a cure, their action is not strictly curative, but they simply tend to retard or arrest the progress of the disease. Some infiltrated areas may, and indeed do, open up again, become pervious, take part in respiration, and finally become perfectly healthy, but the greater part of the pulmonary tissue that is already involved remains so. It is isolated—the disease-process is no longer aggressive, but it is put on the defensive, its area slowly lessens, its infective element dies, and finally fibrous change sets in, converting the enemy's camp into an innocuous ruin.

Under favorable environment the constitution triumphs, but it is not strictly accurate to denominate this triumph as a "cure;" it is a recovery—and a recovery that takes time. From three to five years constitute the ordinary duration of a fatal case of pulmonary tuberculosis. From three to five years constitute the ordinary duration of the process of recovery under favorable climatic conditions. True, there are exceptions, both as to rapidly fatal cases under unfavorable circumstances and rapid recoveries under favorable circumstances. But rapid recoveries are far more rare and far more difficult of demonstration than are rapidly fatal cases.

Now what is the practical meaning of this statement of the time necessary for recovery? It means, for nineteen out of twenty—yes, for ninety-nine out of a hundred—who make change of residence to bring about this recovery, that *the change must be a permanent one*. Five years in a new country mean, for all who are not exceptionally fortunate (or unfortunate), new social and business relations that may preclude the possibility of return to the old home, or that, at least, render such return inadvisable. Then, too, we must remember that return means, too often, resumption of former occupations, renewal of old habits, entrance into old surroundings, which are unfavorable and which tend to cause a second attack, as they probably contributed to the first one. And the universal verdict of Colorado physicians of wide experience is that second attacks of tuberculosis—it would be more accurate to call them relapses—following apparent recovery due to residence in Colorado are rarely recovered from. Time and again our patients who imagine themselves entirely well because a few months have elapsed without serious symptoms, insist upon returning to their Eastern homes to arrange business affairs, to make visits, or to resume their occupations. Arguments, protests, and warnings are without avail, the return trip is made, the predicted relapse occurs (usually disguised as a "cold"), and before the season is out they are back with us, vainly seeking for the second time the gratifying improvement that occurred during their first visit.

We see very many of another class of patients—those who, with far advanced disease of both lungs and with death so plainly stamped upon their faces that the most casual observer could make the correct diagnosis and the certain prognosis, are sent away from home, relatives, and friends upon an illusive chase after strength and health. Patients with their respiratory area so lessened in extent have the inevitable end only hastened in our rarer atmosphere. And far worse is the fact that such fatal results frequently deter really suitable cases from making the essential change of location. It is a regrettable truth that physicians are in many instances responsible for such exhibitions of bad judgment. Another regrettable truth is this: that the diagnosis has in many cases been inaccurate. Indefinite "lung-trouble," "bronchial catarrh," "catarrhal cough," simple "laryngitis," are among the disease-names that we find have been applied in a majority of instances to undoubted cases of pulmonary or laryngeal tuberculosis.

Many patients of this class make a short visit to

Colorado in spite of the advice of the physician at home, who assures them of a perfect recovery if they "take medicine." Their surprise upon discovering actual disease of the lung as a rule only equals their surprise at having the entire thorax examined by percussion and auscultation. Many a tuberculous patient who has "suffered many things of many physicians" gets his first sight of a stethoscope in Colorado—an explanation of the failure to recognize pulmonary tuberculosis earlier in many instances, and a sad commentary upon the careless methods of examination even by capable physicians.

It would not be proper to close this paper without mention of a class of patients that, either from lowered resisting power or because of concentration of the specific pathologic factor, do not recover in Colorado, although they come as early as possible and follow as conscientiously as possible the most approved methods of life and treatment. These cases are not infrequently seen. They belong probably to the class that in unfavorable environment would be denominated acute pulmonary tuberculosis, or in common phrase "quick" or "galloping consumption." Although the climatic influences are not potent enough to permit patients of this class to recover, the favorable conditions do exercise a retarding influence upon the progress of the disease. Not uncommonly persons whose condition is such that six or eight weeks would be the utmost limit of life in a humid atmosphere at a low altitude are enabled to live in comfort and to enjoy life for from six months to two years in the dry, invigorating atmosphere and warm sunshine so constantly present at an altitude of from 5000 to 7000 feet. Such a prolongation of the vital forces means very much to many invalids, and yet this class represents but a fraction of the great and constantly increasing number to whom Colorado climate has brought new health, new vigor, and renewed usefulness in their vocations in life.

A NEW WOOL-TEST FOR THE DETECTION OF COLOR-BLINDNESS.

By WILLIAM THOMSON, M.D.,
of Philadelphia;
Professor of Ophthalmology in Jefferson Medical College; Surgical Expert to the Pennsylvania Railroad Company, etc.

The new test herewith presented is based upon and is a simplification of and improvement on the "color-stick," an arrangement of wools adopted by the Pennsylvania Railroad Company in 1880, and described in their instructions for the examination of their employés, and further in The Medical News of January 14, 1882; in the *Diseases of the Eye*, by Nettleship; and in the *Popular Science Monthly* for February, 1885, under the title of "A Practical Examination of Railway Employés as to Color-blindness, Acuteness of Vision, and Hearing."

The entire system has been continued on the Pennsylvania Railroad unchanged, giving full satisfaction, and is used as a barrier before every new employé to protect the road from the admission of dangerous men. It has been adopted by the Philadelphia and Reading Railroad Company and by others, as is shown by the replies received in response to a circular recently sent to a hundred of the most important railroad corporations of this country, controlling 129,970 miles, asking if examinations were made as to color-blindness. Thus, it was found that

Those using Dr. Thomson's test controlled	38,786	miles.
Those using other methods controlled	15,679	"
Those making no test controlled	29,428	"
Those making no reply controlled	46,077	"

Sixteen other roads having control of 12,947 miles have also adopted my color-stick, thus making a grand total of 51,733 miles protected by this test out of 142,917 covered by the investigation. The total number of roads included is 116; of these 40 use my color-stick; 11 use other color-tests, mainly Holmgren's; 31 use none; 34 have made no response. The entire system has also been in use on the Midland and on the London and Southwestern in England.

The Pennsylvania Railroad system has accomplished much good, but there is yet much to be done to bring all the roads in the country under the protection of some efficient method of testing, to secure both the roads and the public against loss of life and property from these well-known defects of their employés. The total mileage of the country is 175,233 and there are 1,000,000 employés.

The protection of over 50,000 miles of track by one system is an efficient answer to the charge from England, where the total trackage is but 19,288 miles, that nothing had been done in the United States beyond the passing of a law in the State of Alabama on this subject.

As the result of much experience, and after a recent study of the entire subject, I would suggest some improvements that will enable a new test to be used in connection with the color-stick or as a substitute for it. The color-skeins of this new arrangement have been most carefully selected, and a standard set will be kept, so that renewals may be made of the entire set or of those skeins that may become faded, soiled, or lost. The new set consists of a large green and a large rose test-skein, and forty small skeins, each marked with a bangle having a concealed number, extending from 1 to 40, placed in a

double box, so arranged as to keep the two series apart and to permit each to be exposed upon a table in a confused mass. The stick is dispensed with, as giving too fixed an arrangement to the skeins and not enough *confusion*, although the skeins could be readily removed from their hooks and changed in position for this purpose.

The large green skein being placed near by, the small skeins from one to twenty are exposed in good daylight, and the employé under examination is directed to select ten shades of the same color of the test-skein. One with normal vision will choose promptly and with ease the ten greens with odd numbers on the bangles. A color-blind person will hesitate, and his selections will contain some even numbers, and the confusion-colors will be shades of brown, etc., containing some red, or shades of gray, and will indicate the color-defect. These figures are to be recorded on a blank, and the twenty skeins are to be removed. The large rose skein is then used and the examination repeated in like manner with skeins numbered from 21 to 40, and the result recorded. The confusion-skeins, which have even numbers, are blue, green, and gray. From the selections made by the man found color-defective by the green-test, we are able to decide the character of his color-blindness. Those selecting blues are red-blind; those taking greens and grays are green-blind, according to the nomenclature of Holmgren. There are ten roses and ten confusion-colors in the second series.

The red test-skein of the stick, with its confusion-colors, is omitted entirely, and the test is made to conform more strictly with Holmgren's method, while the examiner is also provided with forty questions of decisive clearness. Greater scientific accuracy is obtained by this method, and with the careful selection of these confusion-colors I now regard this system as an improvement upon the stick, and as a safer and more simple method to be used by a non-professional examiner. The blank will also give to the division superintendent or to any supervising surgical expert a more simple report of the examination. The yarns are to be kept from the light in the double box, one side of which is colored green and the other rose, to aid the examiner in keeping the series separate and to save time. The test will be a valuable addition to those to be used by surgical experts.

In order to show how the Pennsylvania Railroad Company keeps its records of these examinations we submit the following fac-simile of an actual blank:

WEST JERSEY RAILROAD COMPANY.

CAMDEN, January 19, 1883.

Examination of sight and hearing of James A. Morris, aged twenty-two, employed as locomotive fireman, applicant for

ACUTENESS OF VISION.	
The number of the series seen at twenty feet distant.	
Right eye	20–30
Left eye	20–20

RANGE OF VISION.		
Least number of inches at which type D—0.5 in test-type pamphlet can be read.	Right eye, 4½ inches	Left eye, 4½ inches

FIELD OF VISION.	
Good or defective . . .	Good.

Color-sense.

Test-skein submitted.	Name given.	Numbers selected to match.
A—Green	Green	3, 26, 24, 7, 11, 22, 15, 5, 1, 17, 28, 9, 19, 30, 13
B—Rose	Red	37, 33, 29, 12, 39, 31, 21, 35, 25, 27, 23
C—Red	Red	37, 33, 31, 35, 23

Second Color-test.			Third Color-test.		
Number shown.	Name given.	Numbers selected.	Flag shown.	Name and use given.	Numbers selected.
24	Green.	26, 22.	Soiled White.	Safety, White.	2, 4, 6.
39	Yellow red.	Could find no match.	Soiled Green.	Caution, Green.	36, 38.
30	Blue	26.	Soiled Red.	Danger, Red.	37, 33, 31.

Selection prompt or hesitating:

Prompt.

Hearing.

Right Ear.		Left Ear.	
Watch.	Conversation.	Watch.	Conversation.
8 feet.	20 feet.	8 feet.	20 feet.

Remarks:

Escaping steam prevented watch-test.

J. J. BURLEIGH, *Examiner.*

Acuteness, right eye defective. Range, good. Field, good. Color-sense, defective. Hearing, see Remarks.

JOS. CRAWFORD, *Superintendent.*

NOTE.—Those approved, marked "Appd."
Those not approved, marked "Not Appd."

It may be of service to present to the surgical experts in charge of the examinations of the various railroads the means that I have adopted for my own guidance in giving my final decisions. From the numerous methods described by scientific authorities I have selected ten that are practical, simple, and especially fitted for the detection of color-defects in employés of railroads. A book of record should be kept in which each case, with the results of the testing, should be entered. The Pennsylvania Railroad

system provides that the preliminary examination should be made under the direction of the division-superintendent by non-professional examiners, but it is to be under the supervision of one professional competent surgeon, who is known as the surgical expert, who becomes responsible for the qualities of the tests, and who gives the final decision in all cases referred to him. Thus the men are protected from the errors of lay-examiners, and do not lose their places until pronounced defective by professional authority. With ordinary care no color-blind man should escape detection by the lay-examiner, but men really fit for the service might be unfairly treated.

When referred to the expert the man found color-blind will present himself with the blank of his examination, and the surgical expert will then corroborate this by the following means:

1. The stick or the new test-skeins; or both.

2. Holmgren's set of one hundred of fifty various-colored skeins will be used and the proportion of mistakes recorded.

3. Browning's pocket spectroscope will then be used, and the man be directed to describe the colors he sees when looking through the instrument. If color-blind he will say that he sees but two colors, yellow and blue, with a gray or a neutral band between then.

4. The color-tables of Stilling will then be used; these are so arranged that on a colored background letters and figures are printed in the confusion-colors of this background so as to be indistinguishable by the color-blind.

It now becomes requisite to test the central vision, and to determine the power to perceive the signal-colors that are used by night.

5. A piece of dark cobalt-blue glass should be used in the trial-frame over each eye separately, and the man be directed to look at the flame of a candle or other small light, from a distance of twenty feet. An eye normal in refraction and color-sense sees the light, colored rose or pink, surrounded by a blue halo. To a hypermetrope there may be a blue light, with a ruby-colored ring or halo; but two colors will always be seen, whilst the color-blind man sees but one color, blue, or a light spot with a blue halo.

6. Donders' instrument has a standard candle in a dark cylinder, with a wooden disc, and pieces of red, green, blue, and white glass so arranged as to be rotated in turn in front of the flame. Here also there is a metallic slide, with perforations ranging from one to twenty millimeters in diameter. The man is placed five meters away, and while the colors of the light are changed by rotating the disc he is challenged to designate the colors of the transmitted light. The normal eye recognizes them through the 1 mm. opening at 5 m.; or, better still, the candle is so placed that the examiner with normal color-sense just perceives the color through the 1 mm. opening at 5 m. The color-blind individual may fail through a series of openings until the 20 mm. one is presented. He may still call white green, and red green. If so, he is asked the significance of the green, and answers "caution." He is then requested to approach the light slowly, and as he does this he may perhaps at one meter or one-third of a meter, by its intensity or size, recognize and call it red. Using the same ratio for his color-blindness as we employ for his acuteness of vision, we can reason thus: Full color-sense enables one to see the lights promptly at 5 meters through the 1 mm. opening; if the man sees them only after the apertures have been increased, his color-sense must be defective. Thus, if an opening of 20 mm. is needed, the color sense $= \frac{1}{20}$; should the man fail with the 20 mm. opening at 5 m. he is told to approach it, and if he sees it at 1 m. he has $\frac{1}{100}$ of color-sense, and if at $\frac{1}{3}$ of m., or 1 foot, he has only $\frac{1}{300}$ of the normal power. The mere diminution of white light, by interposing pieces of London smoke, may induce the color-blind to pronounce it in turn white, green, and finally red.

7. A tin lantern, with a switchlight condenser having a four-inch opening arranged so as to admit of placing pieces of white (ground), green, red, blue, and London-smoke glass before it, is now employed. This could also be made to take the place of Donders' instrument, if covered with a front, and with a sliding-piece with small perforations. A man failing to recognize the light from a four-inch aperture leaves no possible room for doubt, and this fixture is useful in convincing the friends of the man, and any railroad officers who may desire a rude test. The light is in diameter 100 mm., and should be seen at 500 meters.

8. The instrument of Mr. Carter, of London, is then made use of. This is to guard the surgical expert against a hasty opinion, and is to act as a check upon all wool-tests. It is based upon the sensibility of the retina and its power to recognize form and color in various intensities of light. The surgeon and the man examined regard the tests simultaneously while the quantity of light is varied; thus, possible errors with other tests, especially Holmgren's, can be avoided.

9. In Dr. Chibret's instrument, by means of polarized light various colors may be produced at will. The color-blind betray themselves by placing the instrument so that two dissimilar discs of light appear to them alike.

10. Finally, an assortment of flags that have been in actual use, ten of each color, white, green, blue, and red are used as a test. These are thrown

down in a confused mass on the floor, and the man is directed to properly assort them. Astounding mistakes are often made; as, for example, when a man is directed to take a red flag and use it to protect the rear of a train, he may select a green one.

A profound understanding of this curious defect of color-perception must be acquired to enable the surgical expert to make the best use of these various methods, and whilst they are sufficient they are decisive and require but little time. Perhaps the transcript of one case from my record-book may illustrate these brief descriptions:

J. H., employed by the Pennsylvania Railroad Co., forty three years old; found defective, and referred for final opinion.

Color-stick: With green, selects Nos. 1, 2, 3, 4, 6, 7, 11, 13, 15, 17; with rose, selects Nos. 22, 25, 21, 27, 28; with red, selects Nos. 31, 32, 33, 34, 37.

Holmgren: Green, selects 2 greens and 21 confusions; rose, selects 5 greens, with 13 confusions; red, selects 8 greens, with 9 confusions, 2 greens.

Donders: Fails at 5 m. on all apertures; fails at 1 m. on all apertures; ⅓ m. on all apertures.

Calls, with 20 mm. opening, green red; red green, and white, light-red.

He made more mistakes than successes, with gray (London-smoke glass) over white; called it red and green, as light was increased or diminished, and finally declared that he had never seen such lights on a railroad.

Failed with switchlight, 4 inches in diameter, at 5 m. and at 1 m., and manifested a color-blindness or defect greater than $\frac{1}{300}$, as he failed to see at 1 m. what a normal eye would recognize infallibly at 500 meters.

Cobalt-glass: Sees white light with blue halo; no red or rose.

Flags: At 1 m. calls dirty-white green; fails to distinguish red from green. He was then told to select from a pile of flags the danger-signal, or red one, and to hurry back and protect his train; with his own hands and deliberately he chose six—three red, two green, and one blue—stating that "they would all stop trains."

Stilling's tables: Fails in all but VII, which should be recognized by a color-blind.

Pronounced color-blind and unfit for any duty in which he would govern his actions with color-signals.

I will conclude by urging the need for reëxaminations at stated periods, and in individual cases when a man has been injured, or has recovered from a serious illness, or when he uses tobacco or alcohol to excess.

The test here described can be obtained of Queen & Co., of Philadelphia.

The Twelfth International Medical Congress will be held at Moscow in August, 1896.

THE TREATMENT OF ACRO-PARESTHESIA (NUMBNESS OF THE EXTREMITIES).[1]

By WHARTON SINKLER, M.D.,
of Philadelphia;
Physician to the Infirmary for Nervous Diseases and Neurologist to the Philadelphia Hospital.

In 1884 I read before the College of Physicians of Philadelphia a paper on a form of numbness which occurred principally in the upper extremities; and my observations showed that it was usually met with in women at about the change of life, although it occasionally occurred in men. I regarded it as a vasomotor neurosis, because of the circumstances under which it was most likely to occur, and because it seemed to be one of the annoying symptoms which belonged to the menopause. Dr. James J. Putnam had already described some cases of the same kind, and suggested that the affection was probably due to alteration in the blood-supply of the terminal nerve-branches. Omerod, who had also written on numbness of the extremities, believed the condition to be allied to Raynaud's disease, and probably the result of vascular spasm.

"Waking numbness" is a condition which has been recognized for years, and recently several articles on paresthesia of the extremities have appeared. The view now generally held in regard to this disorder is that it is a form of peripheral neuritis. Collins[2] has recently presented an interesting paper on this subject, and analyzes forty-three cases of the affection. He holds that the trouble is due to defective innervation of the bloodvessels, which causes a low degree of blood-pressure and lack of proper blood-supply to the terminal branches of the peripheral nerves. He thinks that the most striking factor in the etiology of the affection is occupation, as he found that 75 per cent. of his patients were women who did either washing, sewing, scrubbing, or needle-work of some kind; and he believes that bodily fatigue, over-exertion, and poor nourishment are predisposing factors.

Schultze[3] reports twelve cases of acro-paresthesia, as he calls the affection, and makes an elaborate study of the symptomatology. He thinks the symptoms are all opposed to the theory of peripheral neuritis, but believes that the disease is somewhat analogous to neuralgia. He considers the etiology obscure, and regards manual labor as having but little influence. He admits that many cases occur at about the climacteric, but says that the influence of that period is wholly unknown. He states that he has found treatment not very efficacious; that drugs are of no use, except to relieve pain, when

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[1] Read by title before the Pennsylvania State Medical Society, May 17, 1894.

[2] Journal of Mental and Nervous Diseases, August, 1893.

[3] Deutsche Zeitschrift für Nervenheilkunde, 1893, iii, p. 300.

present; but that electricity, warm baths, and warm applications may do some good.

Friedmann[1] regards the affection as independent and individual, but harmless, notwithstanding its persistency. He also refers to the menstrual period in women as influencing the onset of the disease. He is disposed to ascribe the trouble to general anemia, with a weak circulation, and thinks that there is often some cardiac affection, usually a slight amount of fatty degeneration. He divides the affection into four classes: the acute and the chronic; a form in which the symptoms begin suddenly and are associated with vertigo (this variety is probably due to some brain-lesion); and a fourth class of cases, in which there is a tendency to rheumatic troubles. He is inclined to refer the trouble to two pathologic conditions: passive hyperemia of the extremities and irritation of the peripheral branches of the nerves. In treatment he recommends electricity, tonics, and cardiac stimulants.

Laquer[2] analyzes eighteen cases in women between thirty-five and forty, and recognizes the features as described by Schultze; but, contrary to that observer, regards the influence of hard work with the hands as being of great importance in an etiologic relation. He regards the affection as a neurosis due to exhaustion.

The observation of a considerable number of cases since 1884 has confirmed the views which I then expressed as to the pathology and etiology of the disease. There is probably in all cases of paresthesia some change in the blood-supply of the peripheral nerves. In those of an intermittent character there is only hyperemia; but in others in which the symptoms are constant, there is, no doubt, a slight but distinct inflammation of the terminal filaments of the peripheral nerves. A patient whose case I have already related[3] illustrates the influence of the menopause in causing paresthesia:

Mrs. Y., forty-one years old, was referred to me by Dr. Oliver P. Rex. Her menstruation had been regular until six months before, when there was a cessation for seven weeks, and then a uterine hemorrhage occurred. An extra-uterine pregnancy was diagnosticated, and at the end of three months celiotomy was performed and a fetus and both ovaries removed. The patient made a good recovery and got up at the end of three weeks. Soon after this she began to have flushes of heat several times a day. Three or four weeks later she had attacks of numbness in the right hand when she awoke from sleep. At first there was only numbness, but later there appeared a sense of prickling and pain, which would awaken her from sleep. In a few days both hands were affected, and they soon became numb all the time. The numbness was most intense in the afternoons, and especially in the distribution of the ulnar nerve. When the woman went to sleep the whole arm became numb and painful, and she was awakened by the sensation. Sleep was, therefore, almost impossible and she walked the floor most of the night. When I saw her this trouble had existed for five weeks; the temperature of the hands was normal, tactile sensation, localization, and appreciation of compass-points were unchanged; but the patient was awkward about sewing and the use of her fingers generally.

In this case the premature induction of the menopause by the removal of the ovaries brought on the vasomotor symptoms which belong to that condition when it comes on naturally, and the symptoms were more intense than those met with under ordinary circumstances. Complete relief was afforded by the administration of ergot.

Various writers have suggested different plans of treatment for this form of paresthesia. Putnam recommended strychnin, phosphorus, and potassium bromid, with the use of galvanism. Omerod found potassium bromid useful. Collins believes that there is no specific remedy, but regards prolonged rest, with restorative treatment, the most beneficial therapeutic measure. The use of the faradic current he considers helpful, but he believes a general tonic plan of treatment, with out-door life and change of occupation, of the most importance. In my paper to which I have referred, I stated that the treatment that I had found most useful was the administration of ergot, and that I had used this drug with the belief that the cause of the paresthesia was a hyperemia of the nerve-trunks or of the terminal filaments. As ergot is supposed to cause contraction of the arterioles, it seemed the proper remedy. I also suggested that in some cases there might be congestion of the cervical enlargement of the cord, from the fact that the numbness is often bilateral, and that the attack is most frequently induced by sleep. More extended experience has confirmed the belief in the utility of ergot in this disease, and I shall cite two illustrative cases:

Mrs. D., thirty-four years old, has always been healthy. Menstruation has always been scanty, and before marriage painful. She has been married twelve years and has had four children. She has had a slight attack of rheumatism, followed by pain in her left side, which becomes weak from overwork. Recently she has had great care and worry in nursing two sick children. Five or six months before coming under observation she began to have a sense of numbness in her shoulders, which extended to the epigastrium, and then appeared in the hands and feet, changing its location from one foot to the other during the day, but becoming

[1] Deutsche Zeitschrift für Nervenheilkunde, 1893, iv, p. 450.

[2] Neurologisches Centralblatt, March 15, 1893.

[3] "Remote Results of Removal of the Ovaries and Tubes," University Medical Magazine, December, 1891.

much worse at night. There is a continual sense of numbness of varying degree in the fingers and hands. It becomes painful in the early morning, but after use of the hands and arms for a time there is less intense prickling, and she is able to go on with her work. There is no anesthesia, and with the dynamometer the grasp of the right hand is 100, that of the left 90. There is no change in the temperature-sense. The patient was very anemic, and was ordered twenty drops of the tincture of ferric chlorid three times a day, and advised rest and good food. She followed this treatment for two weeks and then reported that she was not so well. She was looking better and was less anemic, but complained of an increase of the numbness in the hands, arms, and feet, and had some dizziness and precordial pain. She took iron in full doses for a month. At the end of that time the paresthesia was no better, if anything, worse; and she was then ordered gtts. xxx of the fluid extract of ergot, three times a day. In two weeks she reported that she was very much better, having taken the half-dram doses of ergot steadily. She was now ordered to return to the iron, and took this for two weeks, when she again reported that the numbness in her hands had increased. Ergot was once more prescribed, with immediate relief to the symptoms, and she took this remedy at intervals for some weeks. There was a return of the numbness several times, but it was always relieved by the administration of ergot.

Mrs. B., thirty-three years old, has two children, and has always enjoyed excellent health, with the exception of an attack of chorea, which lasted from the twelfth until the fifteenth year, since which time she has always been somewhat "nervous." She is a very healthy-looking woman, with bright color, and is in good flesh. The urine was found to have a specific gravity of 1018, to be slightly acid, and contained neither albumin nor sugar. She has had some dysmenorrhea since marriage, but menstruation has otherwise been regular and normal. About three months before coming under observation she began to have numbness in the left hand on rising in the morning. This soon extended to the right hand, and then became painful. The numbness and painful prickling soon extended to the shoulders. In a few days sleep became disturbed, and soon the numbness was so great that she would be awakened by it soon after falling asleep, so that for several weeks her rest was greatly broken. Within a few weeks the numbness extended to the feet and legs during sleep. There is no loss of sensation, and the patient is able to use the hands in sewing and in performing other acts. She was ordered a pill of ergotin, grs. ii, and the extract of cannabis indica, gr. ¼, three times a day. In three or four days she reported very marked relief from the numbness, and the dose of ergotin increased to grs. vi *ter in die*. In two weeks she stated that she was very much better, that the numbness had left all of the extremities except the left arm, and it was here very much less. She was then directed to withhold the ergotin and to take lithia-water freely. She remained free from the numbness for two weeks, when she had a sharp attack, chiefly affecting the fingers and hands. She was then ordered to renew the pills of ergotin and cannabis indica, and in a few days reported complete relief. She was still nervous, and was given a pill of iron valerianate, quinin, and strychnin, and has remained free from any numbness up to the last report that I have had of the case.

While ergot relieves very quickly the numbness and painful formication in these cases of paresthesia, it is always necessary to use additional means for the improvement of the general nutrition. Massage is of great value, and general faradization is also useful. Change of air, and tonic doses of iron, quinin, strychnin, usually effect a cure after the relief of the symptoms by ergot. There are cases of paresthesia which are due to lithemia, and these usually yield to appropriate anti-lithemic remedies.

ORIGINAL ADDRESS.

ADDRESS ON OBSTETRICS.[1]

BY E. E. MONTGOMERY, M.D.,

PROFESSOR OF CLINICAL GYNECOLOGY, JEFFERSON MEDICAL COLLEGE; GYNECOLOGIST TO JEFFERSON AND ST. JOSEPH'S HOSPITALS; OBSTETRICIAN TO THE PHILADELPHIA HOSPITAL.

IT may seem at first thought the part of presumption for a surgeon to attempt the address upon obstetrics. But this may be condoned when we appreciate that obstetrics and the surgery of women have been so long associated in teaching—the one almost considered an outgrowth of the other—and that it has been customary in this Society to consider the discussion of gynecologic subjects as eminently proper in the obstetric address. We have still less hesitancy to conjoin the subjects, as we shall in this paper, when we appreciate that the nearer we approach the surgical standard of antisepsis and asepsis in every case of confinement the better are the chances of the patient and the less the danger of subsequent distressing sequelæ. We do not propose to attempt a *résumé* of the field of obstetrics or gynecology, but shall consider a few of the more important conditions from a surgical standpoint.

Symphysiotomy. The revival of this operation by the Italian surgeons almost threatens to again divide the obstetric world into the Symphyseans and Cesareans. We owe a debt of gratitude to Dr. R. P. Harris for the careful and painstaking manner in which he has presented the history and statistics of this and the subject of abdominal extraction of the fetus, by which our ability to save life has been enhanced. Like all new or revived procedures, symphysiotomy has been performed unnecessarily or in unsuitable cases, and, in consequence, the procedure is brought in some degree into discredit. Enough has been done to demonstrate that we have in this procedure an operation capable, within certain limitations, of decreasing the danger for both mother and child. It serves to bridge over the gap between forceps-delivery and Cesarean section, formerly considered as affording greater safety for the mother through embryotomy. The limit below which symphy-

[1] Read before the State Medical Society of Pennsylvania, May 16, 1894.

siotomy should not be performed has been fixed at 6.75 cm. (2.7 inches). This is also the maximum limit for generally successful craniotomy.

Some of the objections that have been raised against symphysiotomy are: (1) that it is a difficult and tedious operation; (2) a second operation is required to deliver the child; (3) the occurrence of injury to urethra or bladder; (4) the danger of sepsis. It cannot be denied that there is some basis for these objections, but the procedures we would substitute cannot be said to be free from disadvantage, and when we consider that through the procedure under discussion one individual is afforded an even chance for life, we may overlook its minor disadvantages. Indeed, we feel that we may now hail the day for which some of us have been so earnestly pleading, when craniotomy upon the living child may be considered as a relic of barbarism, and no longer a justifiable procedure.

If the surgeon may be permitted to suggest rules for the government of the obstetrician attempting to save the life of the unborn, it would be as follows: (1) careful examination should have been made of every patient prior to her coming into labor, in order to determine the size and condition of the pelvis; (2) when previous labors have demonstrated the inability of the patient to deliver herself at full term with safety to the fetus, and examination discloses this to have been due to a faulty condition of the pelvis, measures should be instituted to insure the most favorable termination of the approaching labor for the child, whether that be by the use of forceps, version, symphysiotomy, or the Cesarean section; (3) when the conjugate is above 9.4 cm. (3¾ inches) forceps should be employed or version should be practised; when between 9.3 cm. and 6.75 cm. (3¾ inches and 2.7 inches) symphysiotomy should be performed, followed, if necessary, by the use of forceps; when below 6.75 cm. Cesarean section should be the elective operation for both mother and child. It may be asserted that the patient will not consent to a cutting operation, preferring death to her offspring, but the physician should place himself firmly in the position that he has two lives in his hands, each of which is entitled to consideration, and if the mother declines a procedure that affords her a reasonable chance of restoration to life and health, and a chance for her offspring, such declination does not justify the physician in being not only accessory to the taking of human life, but its actual destroyer. If he is forced by this stand to give up his patient, he will at least have the satisfaction of feeling that he has stood up for the rights of a being unable to speak for itself.

When it can be demonstrated by the length of time the woman has been in labor, by the physical signs, and by the absence of the heart-sounds that the fetus is dead, that method of delivery should be adopted which will expose the woman to the least danger and discomfort. When the woman has been in labor for some time, and the uterus has been contused and injured to such a degree that its structure is likely to become gangrenous, the better plan of procedure will be a modification of the Porro operation. I say modification, for the reason that I do not think it wise in any such case to treat the stump externally if we can so arrange matters as to completely close the abdominal wound. This can be done by the entire or complete extirpation of the uterus, or the removal of the organ with the exception of a small portion of the cervix which projects into the vagina. In such cases the peritoneum should be closed over the stump, to exclude it entirely from the peritoneal cavity. Drainage may be secured by packing the cervix with iodoform-gauze, which may subsequently be removed through the vagina.

Placenta prævia. The one condition in which the future of the fetus should be ignored is placenta prævia. This is particularly true in the cases of central insertion of the placenta. Thus, when a patient begins to have hemorrhages as early as the fifth month, coming on suddenly without any warning, possibly while lying in bed, and becoming so severe as to endanger her life, with the knowledge that she may at any time die from an uncontrollable hemorrhage, and the improbability that the fetus will reach a viable age, there should be no question of the wisdom of evacuating the uterus, and thus afford the patient the best chance for life. In such cases the more rapidly the labor is induced the better it will be for the patient. We may, oftentimes, under the influence of an anesthetic, succeed in dilating the cervix until it will admit two fingers, and then by the Braxton-Hicks method perform podalic version and draw a leg of the child into the cervix and control the hemorrhage until the labor is completed.

Sepsis. The laity has become so well informed of the causes of diseased conditions that it has become a discredit to the obstetrician to have a case of sepsis develop in his practice. While even the most careful man may not be able to escape the development of such conditions, it must not be forgotten, however, that the infection takes place through some unguarded avenue, and the patient becomes the victim of a grave condition. This may manifest itself, of course, in a variety of ways, some of which are amenable to prompt measures, while others will be beyond control from their inception. Infection by the genital tract, as in other portions of the body, may involve the general system and affect the tissues in several different ways. One is by continuous and contiguous extension. Thus, inflammation may extend through the mucous membrane of the uterus to that of the tubes, and finally to the peritoneal cavity; or we may have the infection enter the system through the bloodvessels or the lymphatics. The manifestations of the disease vary greatly according to the method by which the infective agents gain entrance. The more rapid and more virulent form of disease is that in which it enters through the bloodvessels. The most difficult form to manage is that in which it has entered through the lymphatics, forming secondary abscesses in the lymphatic glands. Inflammation extending through the uterus and the ovaries is particularly destructive of the function of reproduction, but it is more self-limited as regards the individual than when the poison enters through other avenues. Thus, the infection and establishment of inflammation in the tubes lead to increased secretion, which coming in contact with the peritoneum sets up at once an inflammation that closes the abdominal end of the tubes, so that a sac is formed, including ovary, and resulting in a tubo-ovarian abscess. The disease becomes self-limited, and results in the formation of abscesses which are necessarily a source of peril to the life of the individual until relieved by operation. With

this knowledge of the progress and results of septic troubles, it is incumbent upon us early to be on our guard regarding the danger of such conditions.

The symptoms of sepsis are: Chill, fever, pain, tenderness, and offensive discharge. In every case of rigor, an elevation of temperature should not be considered as an indication of a beginning septic process, but it should certainly be a warning to lead us to investigate thoroughly as to its cause and watch carefully the subsequent progress of the case. Should the condition not yield promptly to suitable treatment, or should it be accompanied by an offensive discharge, we must not be content with anything less than a complete sterilization of the cavity of the uterus. This cannot be accomplished by mere irrigation with antiseptic solutions, for the uterine cavity is lined with débris, the surface only of which is affected by irrigation, while in the deeper portions germs continue to multiply and ptomaïns develop, the absorption of which causes the elevation of temperature. The proper plan of procedure would be the cureting of the cavity of the uterus with a sharp curet, subsequent irrigation successively with hydrogen dioxid, sublimate solution, and finally sterilized water, after which, in order to make sure of separation of the uterine walls and thorough drainage of the cavity, the uterus should be packed with a good-sized twist of iodoform-gauze. This serves several purposes. It affords drainage through its capillary action; it keeps the surfaces of the uterus apart; it stimulates increased discharges of serum and consequent depletion of the walls; and finally, by its presence as a foreign body, it stimulates uterine contractions, thus diminishing the facility with which the material can find entrance into the sinuses.

This plan of procedure, carried out sufficiently early, will prevent further extension, but when the disease has already extended and secondary foci have formed in the uterine sinuses, in the lymphatic glands, in the Fallopian tubes, or in the peritoneum, the operation will not be an entire success. In such cases it may be necessary to resort to more radical procedures. Should the temperature of the patient continue high and rigors occur, we should feel assured that secondary foci had already developed, and if examination failed to disclose disease in the tubes and ovaries, early section should be resorted to, in order to disclose definitely the condition of the uterine walls. Not infrequently we shall find that the uterine sinuses contain pus-collections, and in such cases the elevation of temperature is very marked and the condition of the patient is an extremely critical one. In such cases, by all means the best method of procedure is extirpation of the uterus. Exploratory section, at at least, should be made with a view of ascertaining, so far as possible, the condition of the uterine walls. Absence of any disease in the uterus should lead to exploration of the tubes and ovaries. If the latter organs are considerably enlarged, it would be well, after carefully packing about to protect the abdominal cavity, to puncture the ovary with a clean knife and ascertain the character of the fluid causing its distention. I have reported a case in which the ovaries were removed because they were quite large, and in which careful examination disclosed that there was no sign of disease in the uterus. The left ovary, the larger, was opened after its removal and found to contain a teaspoonful of foul, greenish pus. Although the patient had repeatedly a temperature reaching 106°, and one of 104° at the time of the operation, her temperature soon became normal and convalescence was uninterrupted.

The presence of masses of exudation in the pelvis, accompanied with tenderness and elevation of temperature, should be considered an absolute indication for resort to abdominal section. It is true that in some cases of this kind the exudation may be absorbed, and the patient slowly convalesce; but it will be found that the patient is crippled, and that adhesions have occurred between the ovaries and tubes, binding them down, oftentimes completely involving the tube and ovary, and producing a painful condition which leads to semi-invalidism.

Vaginal Hysterectomy. The rapidity has been unexampled with which this operation has been accepted by the general profession. The operation was introduced for the relief of patients suffering from carcinoma of the uterus. While its practice for this purpose is rarely questioned, the indications have been extended, so that the operation is now considered advisable in cases of fibroid tumor of small size in the wall of the uterus or within its cavity, giving rise to profuse bleeding, marked prolapse of the organ, and finally, in cases of sepsis when it is recognized that the disease involves the uterine walls as well as other pelvic structures. Some have gone so far as to claim that the uterus is a mere excrescence in every case in which it is necessary to resort to the removal of the ovaries and tubes. While we would not assent to this, we do believe there are many cases in which the inflammatory or suppurative processes involve the uterine walls and in which the patient would have a much better chance for recovery if the entire uterus were removed, and even when recovery from the operation has taken place, the patient has suffered and remained crippled as a result of the uterine inflammatory process.

Vaginal hysterectomy is an operation not difficult of performance in ordinary cases, and one in which the mortality is not great. I have had twenty-seven cases of vaginal hysterectomy, with two deaths, neither of which could be directly attributed to any fault in the operation. The first patient died from tetanus at the end of the fourteenth day; in the second case, a violent attack of catarrhal jaundice developed on the second day in a woman who had been subject to attacks of hepatic inflammation, and who died at the end of a week. In the second case there was intense jaundice, discoloration of the urine, absence of bile from the feces, exceedingly slow pulse, generally normal or sub-normal temperature, and finally delirium and coma.

During the past summer a homeopathist of Chicago gave wide circulation to what he claimed as a new method of hysterectomy, which was simple, safe, bloodless, entirely obviating the necessity of either clamp, cautery, or ligature—a major operation converted into a minor one by a simple process of easy dissection. This operation consisted, after cutting through the vagina, in pushing off the tissues from the structure of the uterus, and performing a practical enucleation of the organ. As the large uterine and ovarian vessels do not enter the uterus directly, but form anastomotic communication in either broad ligament, from which numerous small vessels are sent into the organ, you can readily see that by pushing off the tissues and tearing these

vessels, the ragged edges contract, close the orifices, and prevent hemorrhage. There are cases on record in which a midwife has torn away the entire uterus when inverted, supposing it to be the placenta, and the patient recovered. Investigation of the literature of the profession discloses that this operation is not a new one, but was suggested by Langenbeck as early as 1813.

The operation of enucleation, however, is a slower one. There is increased danger, particularly in cases of carcinoma of the body of the organ, of leaving a portion of the infected tissue, and I must individually confess to a certain amount of anxiety and fear as to the certainty of controlling the hemorrhage. As the clamps are applied the operation is a speedy one, and we have no fear that hemorrhage will subsequently occur. The same method of operation has been utilized in abdominal hysterectomy, whether the entire or only a portion of the uterus is removed.

Eastman has devised a saw-like knife with which, after the fundus is fixed, he proceeds to separate the tissues, tying the ovarian artery on either side, and then tearing off the tissues remaining, not even using a ligature for the uterine arteries. Whether we have the courage of Eastman, to tie only the ovarian arteries, and practically tear away the other vessels, the general principle remains accepted that in removal of the uterus through the abdomen, whether for growths or for malignant disease, either the entire organ, or all but that part of the cervix remaining within the grasp of the vagina, should be included. When a portion of the cervix is left behind, it should be dilated, its canal sterilized with the thermocautery or strong carbolic acid, and a rope of iodoform-gauze carried through it to afford drainage from the raw surface above it. The peritoneal flaps should then be closed with a continuous suture of fine silk, catgut, or kangaroo tendon.

The advantages of such a procedure over the old extra-peritoneal method are: 1. That we are enabled to close at once the external wound, thus greatly hastening the recovery of the patient. 2. The strong retraction of the stump and closure of the wound by a granulating process is avoided. 3. The danger of subsequent hernia through an abdominal wall, weakened by the placing and subsequent retraction of the stump, is greatly decreased. 4. The probability of sepsis is lessened.

CLINICAL MEMORANDA.

A CASE OF ACUTE DELIRIUM.

With some Considerations on its Pathologic Aspects.

By THOMAS P. PROUT, M.D.,
PATHOLOGIST AND SECOND ASSISTANT PHYSICIAN TO THE NEW JERSEY STATE HOSPITAL AT MORRIS PLAINS.

Authorities are at such variance as to the existence or non-existence of brain-lesions in acute delirious mania that I deem the following case of especial interest, presenting as it does both macroscopic and microscopic lesions of some import:

L. S., a colored farm-laborer, twenty-five years old, was admitted to the New Jersey State Hospital at Morris Plains, April 27, 1894, with the following history: The patient had always been regular in his habits and industrious. About one week before admission he suddenly manifested maniacal tendencies, and threatened his employer's life. The authorities immediately took him in custody, and after a sojourn of about one week in the county jail he was brought to this institution in restraint. The patient was so much exhausted that for a short while after admission he was very quiet; but he soon became maniacal, singing and shouting at the top of his voice, and pacing about the ward in an excited manner. He slept very little during his first night in the institution, and was considerably excited during the next day. He took a little food at dinner-time, and slept during the following night under the influence of paraldehyd. On the next morning he seemed very quiet, but listless, occasionally ejecting a quantity of greenish, frothy material from his stomach. Nausea subsided under the influence of small doses of calomel frequently repeated, and the man slept fairly well during the night. On the following day it was determined to feed him, as he had up to this time taken very little food, and he seemed to be fast losing ground; he was accordingly given a sufficient quantity of milk both morning and evening by means of the nasal catheter. During the afternoon he was noisy, but slept fairly well during the night.

On May 1st the man had slight fever in the morning. The tongue was dry. The patient was very quiet all day, and seemed on the whole slightly better. He took milk voluntarily, and manifested no gastric disturbance. His bowels were moved during the day. Nothing further of interest occurred till about 3 o'clock on the following morning, when the night-nurse sent me a report that the patient had suddenly become worse, and was apparently dying. Death occurred about twenty minutes afterward.

The following is abstracted from the autopsy records: The autopsy was made eight hours after death. The pia mater was engorged with blood, but not adherent to the brain-surface. The brain-mass, as a whole, was of greatly diminished consistence, and on section showed marked congestion, although very little blood exuded from the puncta vasculosa, which were very numerous. The softening seemed general, but was most marked in the frontal and parietal segments of the brain.

On laying open the circle of Willis three thrombi were found, one in the basilar artery, successfully occluding its caliber; this thrombus was formed apparently from a thrombotic shred which had been thrown into several folds by the blood-stream, and had received some recent additions in the way of dark clotted blood. The two thrombi in the middle cerebrals were much smaller, the one on the right side being the larger of the two, but neither successfully occluded the caliber of the vessel.

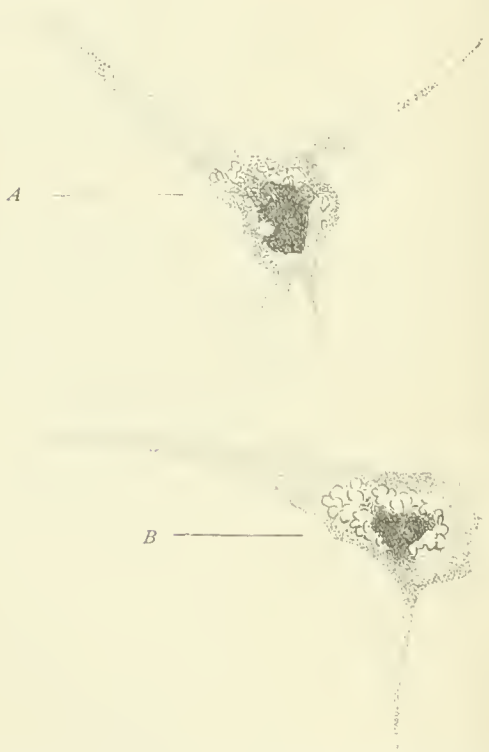
The longitudinal sinus contained an ante-mortem clot, which did not, however, occlude the caliber of the sinus. The heart contained a large thrombus in the right auricle, firmly attached to the tricuspid valve, and occupying about one-third of the space in the auricle; a smaller thrombus in the right ventricle, extending up through the pulmonary orifice; a similar clot in the left ventricle, extending up through the aortic orifice; and also one in the left auricle, firmly attached to the mitral valve. The stomach presented three ulcers, one along the lesser curvature, of very recent origin, midway be-

tween the pyloric and cardiac orifices, and two smaller ones near the pyloric orifice, each about the size of a dime. These were apparently the older.

This case is interesting from a pathologic standpoint, on account of the unusual lesions found to account for the symptoms and the patient's unlooked-for death. Considering the man's age and his previous healthy condition, it seems not improbable that his sudden manifestations of violence were coincident with the occurrence of partial thrombosis of the basilar artery, the mania being due to the serious disturbance in the cerebral circulation, and consequent impairment of nutrition in the ganglion-cells of the cortex. The circulation was still more seriously impaired when the thrombotic shreds in the middle cerebral vessels became thrown into folds and seriously narrowed the lumen of the vessels, and death was to have been expected as soon as the cerebral blood-supply became sufficiently limited by the gradually increasing obstruction to the vascular stream.

The microscopic appearances of the cortex were of interest, because they were unlike the conditions found in three cases of acute delirious mania examined previously, and all of which presented the same lesion.

FIG. 1.



A. Vacuolation of protoplasm of cell; nucleus hazy in outline (upper portion). *B*. Marked vacuolation of protoplasm of cell; nucleus small and hazy in outline. (Zeiss $\frac{1}{12}$ imm. obj., Abbe camera lucida.)

The protoplasm of the cell in the neighborhood of the nucleus was almost invariably vacuolated, the degree of vacuolation varying from two or three small, rounded, light areas to large clumps of these (Fig. 1), which in many instances seriously invaded the nucleus, and in a few almost entirely replaced it. (Figs. 2 and 3.) The changes in the nucleus were quite extensive,

FIG. 2.

Vacuolation of protoplasm of cell and nucleus. (Zeiss $\frac{1}{12}$ imm. obj., Abbe camera lucida.)

but not general; when present they were quite well marked. In very many instances the nucleus was apparently swollen; in these cases it was always very irregular in outline, but the edges were sharply defined. (Fig. 4.) In other instances portions of the circumference of the nucleus were sharply defined, while other portions were very hazy, shading off gradually into the protoplasm of the cell (Fig. 1, B). In many other instances the nucleus was seriously encroached upon by the morbid process in the protoplasm (Fig. 2); in a few instances being occupied by one or two vacuoles, while in a few others it seemed almost entirely destroyed (Fig. 3).

The microscopic appearances are of especial interest when considered in connection with three other cases of acute delirium that have come to autopsy in this institution in the past year and a half, because of the entirely different nature of the predominating microscopic lesion. In these latter cases pigmentary degeneration of the ganglion-cells was the most prominent feature, being widely distributed and extremely well marked. In the case under consideration there was not the slightest trace of pigmentary degeneration anywhere in the cortex; in fact, the normal deposit of pigment seemed absent from most of the cells.

In considering the apparent variability in the pathologic phenomena presented by these cases, I must con-

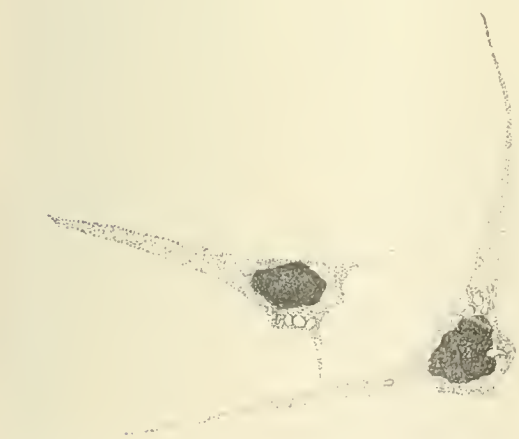
fess that the cause for such variability is not entirely apparent; nevertheless we have to consider the fact

Fig. 3.

Nucleus almost entirely replaced by vacuoles. (Zeiss $\frac{1}{12}$ imm. obj., Abbe camera lucida.)

that while the case was undoubtedly one of acute delirium, the nature of the delirium differed somewhat

Fig. 4.



Enlarged and irregular nuclei. (Zeiss $\frac{1}{12}$ imm. obj., Abbe camera lucida.)

from that of cases ordinarily seen, in that it showed a marked disposition to be transient. We must also bear in mind the lesions existing in the vessels at the base of the brain as having a modifying influence on both symptoms and pathology, no such factor figuring in any of the previous cases.

In connection with this case the work of Dr. H. C. Hodge, of the Clark University, is of exceeding interest. In his study of the changes in nerve-cells after functional activity he demonstrated vacuolation of considerable extent as occurring in the nerve-cell after normal fatigue, together with considerable shrinking of the nucleus. In this case there can be little doubt of the existence of extreme fatigue, as the patient was inclined to violence, and often made night and day hideous to those with whom he was associated. Bearing this in mind, the question of the pathologic significance of the phenomena under consideration is an interesting one.

Are vacuoles in nerve-cells of any pathologic import, or is their presence simply an indication of the expenditure of nervous energy? As a partial answer to this question we should bear in mind the occurrence of the most extreme degrees of vacuolation of nucleus and cell-body in primary and terminal dementia, forms of insanity uncharacterized by mental or physical activity of any description. The same might be said to a lesser degree of the different forms of melancholia. On the other hand, the occurrence of vacuolation in epileptic and some other forms of insanity is well known, and according to Hodge it occurs also as a direct result of physiologic fatigue.

In mental disease the nucleus is most often the seat of the morbid process, while in physiologic fatigue the protoplasm of the cell-body is chiefly affected. The forms of vacuolation also differ widely. In the conditions studied by Hodge the vacuoles seemed evenly distributed through the nerve-cell, while in the case under consideration the vacuoles were grouped together in masses, in the neighborhood of the nucleus, and in some instances involved the nucleus also. It would seem, therefore, that we may consider cellular vacuolation, aside from any physiologic process, as a pathologic factor in insanity of some importance.

In conclusion, the proposition may be made that interference with the cerebral circulation may give rise to maniacal outbursts as a direct result of nutritional disturbances in the ganglion-cells of the cortex. Nutritional disturbance is manifested, first, in the brain, by the marked diminution in the consistence of the cerebral mass, and, second, in the ganglion-cells, by vacuolation of the protoplasm of the cell-body, and in fewer instances of the nucleus also.

A CASE OF GENERAL TUBERCULOUS LYMPHADENITIS WITHOUT INVOLVEMEMT OF OTHER ORGANS.

By D. J. MILTON MILLER, M.D.,
visiting physician to the episcopal hospital, philadelphia.

W. M., a teamster, twenty-two years old, was admitted to the Episcopal Hospital, February 5, 1894. There was no family history worthy of note, nor had the man any previous illness beyond an attack of measles in childhood. His present illness began three months before, when he first noted swelling of the cervical glands (he insisted that they were not swollen before that time).

Four weeks before admission he was attacked with pain in the back and limbs, accompanied by great weakness. He had spells in which he would "tremble all over" and feel chilly, but there were no actual chills. He perspired profusely and continuously, by day as well as by night; but he did not think he had fever, nor had he any cough.

On admission he was noted to be a very thin man, who had evidently lost flesh recently (five pounds in the preceding few weeks, he said). The cheeks were flushed; but the surface was cool to the touch, and the thermometer registered 95° F. in the mouth; the pulse was 120; the respirations 18. The whole surface was bathed with perspiration, which, on the forehead, stood out in large drops. The epidermis of the palmar and plantar surfaces was sodden and macerated, and the skin of the trunk (chest and back) was covered with a profuse vesico-papular eruption. The lymph-glands of the neck were very much enlarged. This condition was particularly marked on the left side, where the glands formed large masses, two of them the size of a hen's egg, under the inferior maxilla and anterior to the sterno-mastoid muscle. The same description applies to the right side, though the masses were smaller, not larger than a walnut. The posterior cervical, the axillary, and the inguinal glands were also slightly enlarged.

The tongue was coated; anorexia existed; the bowels were regular; there was much pain in the abdomen about the umbilicus; the area of hepatic dulness was not increased; the spleen was slightly enlarged; the thoracic organs were apparently healthy. There was a peculiar tremor of the muscles, very much like a fibrillary contraction; this persisted throughout the course of the case. The only symptoms the patient complained of were profound weakness and the constant sweating.

The further history of the case was one of progressive asthenia. Two remarkable features characterized the case throughout: profuse and constant sweating and a persistently low temperature. There were but few occasions during the seven weeks' residence in the hospital on which the whole surface was not bedewed with perspiration, and it is notable that, on the few occasions on which this was absent, the temperature rose to the normal or above. The sweat not only saturated the body and bed linen, but it induced an extensive eczema, which, as the case progressed, became pustular, so that during the last two weeks of life large crops of painful furuncles appeared, and, in addition, the epidermis over the hands and feet separated in large, sodden masses; while on the trunk a widespread desquamation took place. As a result (probably of this constant surface-evaporation) the temperature, except for a period of nine days, remained persistently and almost constantly below normal. During the first eleven days it only reached 98.5° twice. For the next nine days it fluctuated between 97° and 99°, only reaching the latter point four times. During the following twenty days it varied considerably, but it was almost always subnormal; its average range being from 96° to 97°, and only reaching or exceeding 98.5° fourteen times; on one occasion, when atropin (gr. $\frac{1}{200}$ t. d.) had been ordered the day previously, it rose to 102.2°. As the end approached, during the last nine days of life, the temperature ranged between 94° and 96°, and was below 95° eleven times; on four occasions falling to 94°. The thermometric observations were made every four hours. From time to time there was delirium, mostly of a mild character.

Shortly after admission the enlarged glands on the right side began to soften, and on the 27th of February a few drams of pus were removed by incision. Examination of this failed to reveal tubercle-bacilli.

Three different blood-counts were made by Dr. Joseph McFarland, but were very unsatisfactory, because of the difficulty in drawing sufficient blood. The first count gave 1,024,000 red corpuscles; the second, 875,000 red corpuscles; the third, 890,000 red corpuscles. The hemoglobin was estimated at 65 per cent. The number of colorless corpuscles was not estimated. The urine contained neither albumin nor sugar.

There was never any diarrhea or cough, and the examination of the chest was always negative. The patient was given a stimulant and tonic treatment. Syrup of hydriodic acid was administered during the whole course of the disease, but with no other than a tonic effect. For the night-sweats, atropin, gr. $\frac{1}{200}$ t. d., and in larger doses of gr. $\frac{1}{60}$, was the most effectual remedy. Camphoric acid, in doses of from fifteen to thirty grains once daily, made but little impression. Following Ringer's suggestion, pilocarpin, in doses of gr. $\frac{1}{30}$ was tried, but without the slightest result.

On the 25th of March death occurred rather suddenly, but it was momentarily expected, as the man had been growing gradually weaker.

At the autopsy (made by Dr. C. H. Frazier, the resident physician), although a careful search was made, all the viscera seemed healthy; for this reason a microscopic examination was not thought necessary. The spleen was slightly enlarged. The cervical glands were so clearly caseous and tuberculous that no further examination was made of them. The bronchial glands were enlarged, caseous and tuberculous. The mesenteric glands were also abnormal; they were enlarged, and on section showed tubercles and caseous deposits. The same, except that there was no evident tuberculosis and caseation present, may be said of the inguinal glands.

Dr. Joseph McFarland, pathologist to the hospital, to whom some of the glands were sent for examination, has given me the following report: "The bronchial gland is so obviously tuberculous, caseous, and calcareous that a microscopic examination was unnecessary. Its appearance leads me to believe that its lesion is one of long standing. Calcification of tuberculous deposits usually indicates chronicity, so that it is natural to infer that the disease of the bronchial glands in this case was one of the oldest lesions if not the primary one. The inguinal gland is also tuberculous, but presents a miliary tuberculosis of mild grade. The naked eye detects nothing, and the microscope alone reveals the presence of small, partly broken-down tubercles. I think the invasion a recent one, for the reason that the tubercles are few, and that each represents a rather rapid destructive coagulation-necrosis, which causes a granular caseation without giant-cell formation. Careful search was made for the tubercle-bacillus, but it was not found. This was probably due to the poor preservation of the specimens (they were kept for some time in weak alcohol), and not to the absence of the organisms. From

the microscopic appearance I have no hesitation in pronouncing the case one of tuberculosis."

General tuberculosis of the lymph-glands, without involvement of the other organ, is a very rare condition. In a very hasty and superficial review of the literature I have succeeded in finding no cases. Dr. Osler, however, in his *Principles and Practice of Medicine*, speaks of two cases which, in the main, resemble the one here described.

The almost constant subnormal temperature in this case is remarkable, but can be accounted for by the ever-present sweating, which kept the patient in a continuous bath. The skin was always extremely cold to the touch, and the patient was ever in a tremor. It would be interesting to know the cause of the almost uninterrupted sweating. It has been suggested that it was due to pressure on the cervical sympathetics, but it is difficult to believe that pressure existed to the same degree on both sides, and even if it did, it would hardly have caused universal sweating. The most plausible explanation, it seems to me, is that it was brought about by the same agencies that cause sweating in pulmonary tuberculosis, pyemia, and septic processes generally. But as we do not know what those agencies are, or, granting that we do, the exact manner in which they act, and as physiologists are not even agreed as to the causation of perspiration in the healthy, it would seem but a useless speculation to attempt to account for it in this case.

Thanks are due to Dr. Chas. H. Frazier, the resident physician in charge of the ward, for the notes of this case.

INDIGO CALCULUS FROM THE KIDNEY.[1]

By W. S. FORBES, M.D.,
of Philadelphia;
Professor of Anatomy in Jefferson Medical College, and Clinical Surgeon to Jefferson Medical College Hospital.

This specimen was found, *post mortem*, in the pelvis of the left kidney of a man who committed suicide in February, 1892, by turning the gas on in his room. The man was twenty-seven years old, about five feet nine inches in height, and weighed 150 pounds.

The examination revealed rigor mortis to be well marked. The peritoneum, the pleura, and the pericardium were normal. The heart was slightly hypertrophied, but its valves were normal. Both lungs were intensely congested and black in color, and did not turn red on exposure to air. They were not edematous. The peribronchial glands were intensely calcareous, and slightly larger than normal. The spleen was normal. The bladder was normal and was partially distended with urine, which on examination was found free from albumin, sugar, casts, pus, and blood. This case well illustrates the tolerance sometimes displayed by the kidney to the presence of even large calculi, for upon inquiry of the family of the subject from which the specimen was obtained, no history of pain or other symptom suggestive of the presence of the foreign body could be obtained. The right kidney was slightly movable in the perinephric fat, but was otherwise normal. The left kidney was surrounded by a thick fibrous mass, involving the entire perinephric fat. This inflammatory deposit also involved the blood-vessels passing to and from the kidney. The renal vein was much constricted in passing through the inflammatory mass. The ureter was bound by fibrous bands that slightly compressed it. An incision into the kidney revealed a calculus occupying the pelvis and one calix.

Professor W. M. L. Coplin, of Jefferson Medical College, made the post-mortem examination and handed me the kidney, with the calculus *in situ*. The specimen, of which an actual representation is here given, weighs 147 grains; its greatest thickness, fore and aft, is $\frac{19}{32}$ of an inch. It measures from A to B 1⅛ inch, and from C to D 1½ inch.

The dark-brown color caused me to think that it was formed of indigo, and drawing it across white paper it left a rough, blue mark, so that I was further impressed that it was perhaps indigo.

Ord, in his most excellent little work on the *Influence of Colloids upon Crystalline Form and Cohesion in Urinary and Other Calculi*, London, 1879, p. 144, has described at length what he believed to be the only specimen of indigo calculus in man that had hitherto been published. His specimen was a flat, hard cake, of the shape and size of a fruit-lozenge, and weighed forty grains; it was partly of a dark-brown color, three-fourths of its surface presenting a blue-black color; it was granular and without polish, and when drawn across white paper left a rough, blue mark.

The stone herewith presented reminded me so forcibly of Ord's indigo calculus that I determined to have it subjected to the same accurate test to which he subjected his specimen. The result was almost identical with Ord's. The dust of the stone was placed on platinum foil, and on applying heat the vapor emitted was collected on a glass slide, a drop of glycerin was added, and on comparing the specimen thus obtained with a preparation made in the same way with commercial indigo the appearances were identical. In both cases there were abundant blue prisms mixed with blue granules. The prisms were oblong, with pointed ends, and occasionally truncated.

The color-test was exactly the same in both specimens (Ord's and my own). Sulphuric acid dissolved the powder first into a brownish and then into a muddy-blue solution, which, after dilution with water and filtration, yielded a clear, blue fluid. This fluid gave in the spec-

[1] Read by title before the American Surgical Association at Washington, May 30, 1894.

troscope a marked band of yellow, without stopping the blue or red rays. The sooty odor on the application of heat was most decided.[1] The specimen may be seen in the Museum of Jefferson Medical College.

1724 WALNUT STREET.

A CASE OF ACCIDENTAL HEMORRHAGE.

BY EDWARD T. ABRAMS, M.D.,
OF DOLLAR BAY, MICH.

THE following case is reported with the hope that it may prove of interest to general practitioners that have not the advantage of being able to call in a specialist, but who must act upon their own responsibility and with their own knowledge.

In February last I was called to deliver Mrs. T., thirty-four years old, a quintipara. The previous labors had been normal throughout, and on my arrival in this particular one, things were progressing nicely. The pulse was strong, regular, and about 78. Labor-pains were strong and regular.

As it looked as if some time would elapse before labor would be completed, I lay down in the same room.

After a time I was startled to hear the woman say that she was feeling faint. I sprang to her side and found her pulseless and in a state of collapse. The pains had entirely ceased; the uterus seemed enormously distended and boggy. The face was pinched and pale—in fact the woman presented a typical picture of post-partum hemorrhage. A hasty vaginal examination showed the os to be fully dilated and the membranes intact, but negative as far as hemorrhage was concerned. I gave the woman a hypodermatic injection of whiskey and ergotin, and shortly had the satisfaction of feeling the pulse again at the wrist, though exceedingly rapid, weak, and irregular.

After waiting for some little time, with the hope that she would rally, and the condition of things not materially changing, I ruptured the membranes, applied the forceps, and delivered a fine male child; then a gush of blood followed, together with clots sufficient to fill a good-sized basin. By gently kneading the uterus it contracted well and gave no further trouble. Both mother and child were saved in this case. I believe, by the prompt stimulation and the complete, immediate emptying of the uterus.

WIDESPREAD PARALYSIS FOLLOWING DIPHTHERIA.

BY E. W. PRESSLY, M.D.,
OF CLOVER, S. C.

CARRIE B., aged eight years, was attacked by diphtheria during the first week of February. The attack was rather more severe than the average during the epidemic. The drum of the left ear was perforated, and at times fluids after being swallowed would escape through the ear. During the early portion of the convalescence paralysis of the muscles of the soft palate made its appearance, and fluids regurgitated through the nose on swallowing.

The paralysis next invaded the ocular muscles, giving rise to strabismus. The sphincter muscles of the iris became paralyzed, and the pupils enormously dilated. Diplopia was also complained of. In a short time the paralysis had involved both arms and legs, and the little girl was unable to turn in bed. The knee-jerks were entirely absent, and the surface of the skin not normally sensitive to touch.

Gradually, under treatment, the paralysis disappeared, and now there only remains a slight difficulty in the articulation of certain sounds.

The treatment consisted, during the attack of diphtheria, in the use of large amounts of tincture of ferric chlorid and whiskey, together with the use of antiseptic applications to the throat.

For the paralytic trouble I used strychnin, general friction of the entire body, bathing, and rolling in the open air in a child's carriage.

NEW DEVICE.

ILLUMINATION AND EXAMINATION OF THE ANTERIOR AND POSTERIOR NASAL CAVITIES.

BY D. BRADEN KYLE, M.D.,
OF PHILADELPHIA;
LARYNGOLOGIST TO ST. AGNES' HOSPITAL, INSTRUCTOR IN CLINICAL MICROSCOPY, AND ASSISTANT DEMONSTRATOR OF PATHOLOGY IN JEFFERSON MEDICAL COLLEGE.

THE method usually resorted to in the examination of the nasal cavities consists in the use of reflected light, which is projected into the cavity, as in the anterior cavities; or by means of reflected light and the rhinoscope, a view of the structures of the cavity is obtained, as in the post-nasal space. In order to obtain a clear definition of a body, the light should be at a point beyond the object to be examined and the position occupied by the observer. This is especially true of the various cavities. If a light then be placed within the post-nasal space a good view can be obtained through the anterior cavities, not only of the structures therein contained, but also largely of the naso-pharynx. With this end in view I have employed the following device, of which, so far as I am aware, the idea is original, at least in its application to nasal examinations and in the controlling of the heat by means of the aluminum cap. I am indebted to Mr. W. L. Turner, of Charles Lentz & Sons, for valuable assistance in the construction and perfection of this apparatus. A little incandescent light of four-voltage power is placed on the end of two light, insulated copper wires constructed the same as a cautery-wire. (See figure.) An objection was found in the inconvenience caused by the heat produced by the current and reflected from the lamp. To obviate this it was found, after testing many materials, that an aluminum-

[1] I am indebted to Prof. J. W. Holland, Professor of Chemistry in Jefferson Medical College, for the foregoing analysis.

cap could be used continuously for at least half a minute without any inconvenience; but by interrupting the current it can be used as long as desired. This cap has an opening to allow the escape of the rays of light, and also acts as reflector. The cap is so arranged that the aperture can be turned in any direction desired, so as to enable the observer to directly illuminate any part to be examined. The light is placed in position with the same movement as is used in introducing the rhinoscope, and when directly behind the arches the patient closes the mouth, holding the instrument firmly between the teeth. I have passed the instrument in a number of cases in which the fauces were extremely sensitive, and I find that if it is passed in the manner described no difficulty in retaining the instrument is experienced. The observer, then, with the aid of the nasal speculum, can obtain a perfect view of the parts. The light can be turned on and off at will. This method will also, after a little practice, largely enable the observer to determine the condition of the accessory cavities and parts, especially the antrum of Highmore. The connecting wire will fit any of the many handles now furnished with the equally many batteries. The battery used with this light is the Edco storage-battery of sufficient power to light a six-volt lamp. The whole outfit weighs less than twenty pounds.

1632 Chestnut Street.

MEDICAL PROGRESS.

Hydatid of the Brain.—Hawkes (*Australian Medical Journal*, vol. xvi, No. 4, p. 199) has reported the case of a boy, six and a half years old, who a week before coming under observation had a convulsion, in which the body became stiff and the face pale, but without cry or biting of the tongue. On inquiry it was learned that the child had had attacks of vomiting at intervals of one or two weeks during the previous four months; his mental condition had become dull; he was less inclined to play than formerly, preferring to lie down and sleep during the day. He had for two weeks complained of pain in the right frontal region, and during this time the right eyelid had been observed to droop and the gait to be a little unsteady. The child had gained flesh. The water-supply of the family was taken from a creek. The boy was well nourished and without external evidence of disease. Vision with the right eye was impaired and the pupil was dilated and fixed. The left eye, which turned inward, was normal. On ophthalmoscopic examination the retina of the left eye was seen to be of a bright-pink color, that of the right bright-red; the vessels were plainly seen. There was no tenderness on percussion of any part of the skull, but the child frequently put his hand to the right side of the forehead. There was general paresis of the muscles of the extremities, the grasp being weakened equally on both sides. A diagnosis of tumor of the brain was made, but an opinion as to the location was not ventured. The condition of the child underwent little change for two weeks, when he became unconscious; the temperature rose to 102.5°; there was complete flaccidity of the extremities, and there was no response to the hardest pinch; both pupils were widely dilated, and the corneal reflex could not be elicited. This condition continued for thirty hours, when the child showed signs of returning consciousness. Improvement gradually took place, and in the course of two weeks the boy was able to answer questions and recognize voices. At this time there was complete amaurosis and both pupils were dilated, particularly the right; ptosis of the right lid was not so marked as it had been; the sense of smell was completely lost; taste was impaired. The child was unable to stand without support; when in the erect position his head inclined forward and toward the right shoulder, and the whole body had a tendency to fall toward the right side. Sensation was not deranged. The pupils were widely dilated when the child was awake, but contracted when he was asleep. Two days later there was slight paralysis of the right side of the face, only noticeable at times; the tip of the tongue deviated to the right and there was some difficulty in swallowing. The probability of the existence of an hydatid growth implicating the motor area in the right cerebral hemisphere, as well as the right hemisphere of the cerebellum, led to the consideration of operative interference, but upon consultation this was deferred. The child died on the day fixed for trephining the cranium over the ascending parietal convolution at the junction of its middle and inferior thirds. Upon post-mortem examination a large hydatid cyst was found in the right cerebral hemisphere, extending from the cuneate lobe to the fissure of Rolando; the bones of the skull were thinned; the dura mater was congested, and there was a large blood-clot in the torcular Herophili, extending into the lateral sinus. The cyst presented in the longitudinal fissure through an opening about the size of a five-dollar gold piece.

Congenital Hydrocele of the Neck Cured by Drainage and Compression.—Dickinson (*British Medical Journal*, No. 1741, p. 1018) has reported the case of a healthy, intelligent-looking male child, three years old, that from birth presented a swelling in the lower part of the neck, in a vertical line with the left ear. The growth had gradually and progressively increased in size, and, following a slight blow, had become inflamed and threatened to suppurate; the inflammation, however, yielded to hot applications. The mass appeared as a soft, white, fluctuating swelling, translucent and pearly, owing to the thinness of its walls over the posterior half, having no discernible veins running over it, and becoming alternately tense and soft during crying and coughing. It extended from the sternal extremity of the left clavicle in front to the middle line behind, and quite filled up the sulcus between the neck and the shoulder, looking like a swimming-collar and overhanging the clavicle in front. A trocar and canula were passed into the cyst at its posterior and thinner part, and about eight ounces of dark greenish-brown, highly albuminous fluid, resembling bile-stained urine, escaped, with little or no force, the child breathing tranquilly at the time. A small incision, sufficient to allow of the introduction of the little finger, was made in the position of the puncture, and through this the cavity was explored. The sterno-mastoid muscle in the front wall of the cyst felt thin and atrophied; the carotid artery, lying by the trachea, and the subclavian, passing over the left lung, felt quite hard and clear, apparently having no covering and lying free in the cyst. No constriction or obstacle prevented the

finger from following the arteries downward behind the sternum to the arch of the aorta, which was felt pulsating vigorously, and as far as could be discerned was quite bare. The child at this stage showed signs of shock, turning pale and the respiration ceasing. After two efforts at artificial respiration, natural breathing was resumed. No further attempt at exploration was made, but a second small incision was made in the cyst-wall about two inches in front of the first and one inch behind the posterior border of the sterno-mastoid muscle. A piece of thin drainage-tube, passed in at one opening and out at the other, was found to be too rigid, crumpling up the intervening wall. A seton, consisting of five or six strands of fishing-gut, was therefore introduced and the ends tied together. A good pad of absorbent gauze was bandaged firmly over the site of the collapsed cyst. The wound was dressed on alternate days for thirteen days. At the earlier dressings a considerable quantity of blood-stained serum escaped and soaked the dressings, but the openings drained well, and not more than three-fourths of an ounce was ever found pent up. At the later dressings the character of the discharge became altered to a muco-purulent fluid and the temperature began to rise, the general health at the same time suffering somewhat. The seton cut its way out, and the wound continued to discharge more or less freely until five weeks after the operation, when it had healed and there was no appearance of any swelling or recurrence. The child rapidly regained its health.

THERAPEUTIC NOTES.

Potassium Iodid for Prostatic Hypertrophy.—DAVY (*British Medical Journal*, No. 1750, p. 68) reports a troublesome case of hypertrophy of the prostate, in which catheterization was almost impossible, and the patient's sufferings were so great as to require morphin for their relief. When a catheter could not be passed at all, the involuntary straining efforts to pass a few drops of urine were most distressing, the patient being bathed in perspiration and groaning with agony. For the relief of this condition potassium iodid was prescribed in the form of suppositories, each containing ten grains, one to be introduced into the rectum every night. In the course of some time the prostate became somewhat diminished in size, with corresponding relief from the distressing symptoms. Although a catheter could not entirely be dispensed with, the man was for the most part able to pass a fairly good stream of urine. It is recommended that the line of treatment pursued in this case be at least given a trial in similar cases before proceeding to measures of graver moment.

The Danger from Antipyrin, Antifebrin, and Phenacetin.—As the result of an inquiry conducted during the past year as to the frequency and importance of the ill-effects following the use of the three chief antipyretic agents, phenazone (antipyrin), acetanilid (antifebrin), and phenacetin, the Therapeutic Committee of the British Medical Association has found that the statements concerning these effects have been considerably exaggerated, most of all so in the case of antipyrin and phenacetin. The ill-effects observed, when not obviously due to idiosyncrasy, have in the majority of cases been the direct result of injudicious or excessive dosage. This has especially been the case with antifebrin, with which drug the ill-effects have been the most frequent and most serious. The dosage employed by no fewer than three-fourths of observers (from four to ten grains) has been habitually excessive, the proper dose of this drug being from one to four grains.

Ortho-chlorphenol and Para chlorphenol in the Treatment of Tuberculous and Other Affections of the Upper Air-Passages.—SIMANOWSKY (*Therapeutische Monatshefte*, viii Jahrg., H. 7, p. 329) has employed ortho-chlorphenol and para-chlorphenol in the treatment of tuberculous processes of the upper air-passages and in hyperplastic conditions and chronic swellings of the mucous membrane, using 5 per cent., 10 per cent., and 20 per cent. solutions in glycerin, or pure melted para-chlorphenol. The affected areas are either painted by means of a brush or a cotton swab, or the solution is injected by means of a laryngeal syringe. The application is for a short time followed by burning and pain, so that in the case of sensitive individuals the treatment may well be preceded by an application of a 10 per cent. solution of cocain hydrochlorate.

Chloral Hydrate for Hemoptysis.—Having in view the reduction of the pressure in the pulmonary circulation, PAL (*Centralbl. für die gesammte Therapie*, 1894, H. 7, p. 385) employed chloral hydrate in doses of from 15 to 37.5 grains by enema in the treatment of the hemoptysis of pulmonary tuberculosis, selecting young adults with healthy hearts. In some cases the hemorrhage would cease or diminish in from half to three-quarters of an hour, sometimes recurring after a varying interval. In a number of instances the administration of the drug was repeated, sometimes in a prophylactic way even after the hemorrhage had ceased. Morphin and codein may be expected to act with correspondingly good results, and morphin has the additional advantage of subduing cough.

The Use of Spartein as an Adjunct to Chloroform-anesthesia.—At a recent meeting of the Paris Society of Biology, LANGLOIS and MAURANGE (*Gazette Médicale de Paris*, 1894, No. 28, p. 331) stated that, governed by the influence of spartein in regulating the action of the heart and diminishing the excitability of the pneumogastric nerve, they were led to employ this drug to avoid the cardiac depression that sometimes manifests itself in the course of chloroform-inhalation. Their experience included, in addition to experiments upon animals, 120 observations upon man, sometimes in the presence of cardiac disease, sometimes when the operation was protracted. Their mode of procedure consisted in the injection of from gr. ss to gr. $\frac{3}{4}$ of spartein together with gr. $\frac{1}{3}$ of morphin fifteen minutes before beginning the chloroform-inhalation.

For Broncho-Pneumonia. SUTLIFF (*Occidental Medical Times*, vol. viii, No. 7, p. 398) recommends the administration of tincture of veratrum viride in small, frequently-repeated doses. Young nursing infants may have a fraction of a minim, and older children more, every two or three hours. Under this plan of treatment the pulse-frequency is reduced, the respiratory acceleration diminished, and the whole aspect of the case changed for the better.

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THE CHILDREN OF THE STATE IN ENGLAND.

THE *British Medical Journal* has lately presented a series of articles setting forth the condition of the orphan-asylums and schools for destitute children in Great Britain. As a result of this exposition the public conscience has been so quickened that a deputation of two hundred prominent persons recently waited on the President of the Local Government Board, asking that an inquiry be instituted as to a better method of caring for the children of the State. A full report of this conference appears in the *British Medical Journal* for July 28, 1894, p. 211.

In looking over this the American physician is surprised to find that the orphan-asylums and "barrack-schools," as they are called, supported by the Local Government Board are practically prisons in which the children are kept from the world and from which the inquiring public is entirely excluded. It appears that the President of the Local Government Board confessed himself powerless to open the doors of these bastiles even in a single instance. This state of affairs is only approached by the condition of some of our city prisons.

Under these circumstances it is evident that all sorts of abuses are encouraged. The persistent criticism of scientific sociologists, the clamor of the laboring-classes and their powerful journals, the multiplied inspection and over-inspection by boards have driven out many of the scandulous abuses of twenty years ago; but there remain the inherent faults of the institutional system.

The destitute children of England are collected together in great barracks, from 200 to 1400 in each. They are fed, washed, and slept by machinery, at an almost incredibly small expense, but they grow into a physical maturity without a knowledge of the most ordinary conventions of life. They have never been in a home, and therefore they do not know what a home is, and they make mistakes that would be laughable were they not so significant. They are unfamiliar with the requirements of family, neighborhood, and business life. Of human affection, of kindness, of charity, of devotion, of hope, of ambition, of self-denial, and of brotherly love they know nothing. They have no moral or social development and training to prepare them for life in the world, and when they go out for themselves they are prepared for no career, and no avenues are open to them except those of crime and vice.

But even this is not the only indictment of the institutional system. Every child should be sent out sound and healthy, but these children are sent out with defective eyes and ears, with all sorts of skin-diseases, with imperfect and impaired, and even diseased, respiratory apparatus, and, again, with all those diseases and defects that follow the acute infectious diseases even under the most favorable circumstances. Defective vision, defective hearing, and consequent dull and undeveloped mental faculties, with lack of exercise and diminished vital force, form the heritage of those who survive the recurring epidemics of diarrhea, eruptive diseases, typhoid fever, diphtheria, and ophthalmia.

The death-rate has been and continous to be appalling. The crippled, bow-legged, rachitic, humpbacked, and scrofulous are more than twice as numerous among them as among the lowest independent poor. The average physical development is of the lowest grade.

The Charity Organization Society and the British Medical Association have collected information which the officials of the Local Government Board have not found time to investigate and have refused to publish. These documents have been published elsewhere. Nearly all the teachers and attendants in these institutions must, according to the rules of the Board, be unmarried. What a cruelty to practise on the children of the State, that they must be

cared for by old maids and bachelors, or those who do not have the softening influences and culture of a son or daughter! No wonder that 53 per cent. of the barracks-brought-up girls are reported "bad or unsatisfactory," and that an excessively small percentage of the boys become useful men.

The results of this child-incubation are most unsatisfactory; but above all, it is expensive. And this point will doubtless appeal to the American mind. It appears that each child is reared at an expense of about $150 a year in the barracks, while in cottages the expense is $125, and by the boarding-out system $65 a year. This statement becomes more exasperating when we learn that almost one-half goes for officers' salaries and only one-fourth for the "maintenance and burial" of the children.

The *London Times* has given the inquiry the support of a powerful editorial, but nowhere does anyone mention the success that has followed the boarding-out plan in Australia. This system was noticed in the THE MEDICAL NEWS of November 11, 1893, p. 551.

To us the condition of our own institutions for destitute children is of little interest. The number of such children seems to many comparatively small. In all of our large cities great colonies of gamins subsist and thrive in the streets, under the sidewalks, and in deserted mills and houses. Only those too young to run away can be kept in the eleemosynary institutions that the pious have provided. Detention is possible for those who have tasted liberty and street-life, only when committed by our unthinking courts. Thus, while England is aroused over the perversion of humanity in these barracks and workhouses, and demands a legislative investigation, America, the land without a privileged class, has not the time to discuss the subject at all. In far-away Australia the problem is solved.

It might be denied that the children of the State and their condition and education have received no attention from us. Let a few facts answer.

At a recent visit to Troy, N. Y., a new gothic orphan-asylum was discovered that cost for the building alone 125,000 dollars, and prepared to accommodate 200 children. This is a private institution, doubtless with ordinary wishy-washy charitable motives and with the ordinary inadequate, and, may we say, inhuman results. In the city of New York a Catholic institution was visited in which there were 300 inmates supported from the treasury of the city. In Pittsburg, Pa., attention was called to the fact that a young girl was then in jail for ten days for disorderly conduct on the testimony of a single police officer, and the same one who had sent in a similar way two sons of this girl's widowed mother to the workhouse for thirty days each. It was impossible to gain any admission to this girl because her sentence was a ten days' bread-and-water punishment. And what for? For going out barefoot on the streets of Pittsburg to look for her brother at 11 o'clock at night.

Scientific, unprejudiced men and women have shown beyond question:

1. That institutional life is dangerous in proportion to the size of the institution and the youth of the inmates.

2. That the children of the street are in the schools for vice and crime.

3. That the commitment of young persons and children to the jails, prisons, and workhouses of our cities is inexpedient, extravagant, inhuman, and in every way irrational.

4. That every orphan-asylum is a public curse.

5. That the most efficient, the most economic, and the most rational method of caring for destitute children is by the boarding-out plan, or Australian system.

No altruist can look with complacency upon our condition as regards the children of the State. This movement in England may, perhaps, arouse our anglo-maniacs to imitation. But only the thoughtful will hasten the time when ours shall be a country without an orphan-asylum and a land without a child in workshop, jail, or reformity. In this work medical men must be conspicuous for the honor of our profession.

EDITORIAL COMMENTS.

The Presence of Tubercle-bacilli in the Nasal Cavities of Non-tuberculous Persons.—The ubiquity of the tubercle-bacillus is already well recognized. As the dissemination of the organisms takes place most commonly through the mediation of the fine particles into which the indiscriminately-disposed-of expectorated matters or other discharges from tuberculous persons are ground, it is logically to be expected that the bacillus may be found wherever dust can penetrate. Thus it is that tubercle-bacilli have been found in washings from fruit exhibited for sale in open places, as upon the streets, and upon the walls and ceilings and in the dust of houses occupied by tuberculous subjects to the care of whose discharges the most scrupulous attention has not been given. The knowledge of these facts prepares us for the announcement made by STRAUSS (*Münchener medicinische Wochenschrift*, 1894, No. 28, p. 567) at a recent meeting of the

Paris Academy of Medicine, that he has found virulent tubercle-bacilli within the nasal cavities of non-tuberculous persons whose relations necessitated their association with and frequent presence in rooms occupied by tuberculous patients. The individuals thus studied included male and female hospital-attendants, patients that had long resided in the hospital on account of other than tuberculous affections, and finally clinical assistants. Those belonging to the first and last categories were in perfect health and presented not the slightest evidence of tuberculosis. In the cases studied observations were made of the dust, the crusts, and the accumulations of mucus in the nasal cavities, removed by means of cotton tampons mounted on wooden sticks and sterilized. The tampons and their contents were placed in sterilized water, and this fluid was then injected into the peritoneal cavity of guinea-pigs. Twenty-nine animals were thus treated with the secretion from twenty-nine persons. Seven guinea-pigs died in the course of a few days in consequence of septicemia or purulent peritonitis; nineteen of the animals remained perfectly well, and upon post-mortem examination presented no sign of disease; while nine died or were killed in from three to five weeks, and presented pronounced tuberculous lesions. Of the twenty-nine persons that furnished the material for inoculation all presented no evidence of tuberculosis, but had been for a considerable time in or about the hospital-wards. Of the nine whose nasal secretion contained virulent tubercle-bacilli six were attendants, who lived in the hospital, cleaned the wards, made the beds, etc.; one was a patient, free from tuberculosis, who had long been in the hospital; and two were clinical assistants (among seven) who spent only a few hours daily in the wards.

These observations emphasize not only the widespread distribution of the tubercle-bacillus (and of other pathogenic microörganisms as well), but also the risk of association with the tuberculous and the dangers of dust, as from the careless street-cleaning of our large cities and house-sweeping and the beating of carpets in the open air; and finally the importance of breathing through the nose, for as is well-known the nasal passages act as a filter for the air that enters the lungs and stands as a barrier to the entrance of solid particles, animate or inanimate, whose presence might occasion mischief. It would be interesting to determine whether or not tubercle-bacilli are present in the nasal cavities of persons whose relations do not bring them in contact with tuberculous subjects or expose them to distinctly tuberculous surroundings.

"The News" and the American Medical Association.—We are sometimes asked "Why does THE NEWS devote so much space and emphasis to the affairs of the AMERICAN MEDICAL ASSOCIATION and of its *Journal?* Of what benefit to medical science are ethical discussions?"

We devote space and emphasis to the affairs of the AMERICAN MEDICAL ASSOCIATION because we consider it our duty and the duty of every physician in the United States to endeavor to strengthen that Association, improve its organization and increase its usefulness. Organization is necessary to the exercise of function and the accomplishment of ends. The physicians of America, as a body, have certain legitimate functions to perform and ends to accomplish which demand organized, systematic, concentrated effort; and the AMERICAN MEDICAL ASSOCIATION, because of its comprehensive, representative, democratic character, is the best agency through which to bring about the organization of the profession, and by which and in which to do the work and attain the purposes of such an organization. Among these purposes are the bringing together of co-workers in sanitary and medical fields, the consideration of means by which the status of the profession may be elevated, the creation of proper public sentiment upon questions of State medicine, and many others that need not be here repeated, as we have often stated them.

We have devoted some of our space to criticism of the *Journal of the American Medical Association* because we recognize in the *Journal*, properly conducted, a most effective means for carrying out the high purposes of the ASSOCIATION; because we wish to see the *Journal* as good as it can possibly be made; because we conceive that the *Journal* must fail to win the respect of the profession or to exert a good influence, just in that degree that it departs from the highest standard of journalistic and medical conduct.

We believe that ethical discussions are of benefit to medical science, because unethical conduct retards the development of medical science; and hence in exposing and emphasizing the true principles of medical ethics we assist in removing obstacles from the path of science. To permit sham or fraud or unworthy pretence of any kind to go unrebuked is to offer a reward to the two greatest foes of all science and all progress—namely, ignorance and knavery. Therefore, without at all diminishing its labors in matters more directly pertaining to medical science and medical art, THE NEWS trusts to have the continued support of its readers in its continued endeavors to uphold the true interests of THE AMERICAN MEDICAL ASSOCIATION and of *The Journal of the American Medical Association* and in its contest against ignorance and knavery.

We are still patiently awaiting the publication of the full official text of the report of the Judicial Council on the complaint of the MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA. It is a matter of much interest, and there should be no unnecessary delay in acquainting the profession with the action of the Council and its reasons therefor. In this connection we call attention to the clear and judicial editorial which, in another column, we quote from the Journal of the Lehigh Valley Medical Association.

The Influence of the Liver in the Development of Pancreatic Diabetes.—Although we have learned that certain lesions of the central nervous system and destructive changes in the pancreas respectively are attended with glycosuria, the etiology and pathology of diabetes mellitus are yet unexplained. Whatever the chemic and metabolic changes upon which the excretion of sugar in the urine depends, there is evidence that no small part in the morbid process is played by the liver, of whose multiplicity of function we really know comparatively little. There is good reason for believing that under normal conditions the liver either stores up or converts into other bodies a substance allied to sugar, and which, under certain morbid conditions, appears in the urine as

glucose. Additional evidence of this influence of the liver in the development of diabetes is furnished by the results of some experiments detailed at a recent meeting of the Berlin Physiological Society by MARCUSE (*Münchener medicinische Wochenschrift*, 1894, No. 28, p. 564), who undertook to determine if the diabetes that appears after extirpation of the pancreas manifests itself in case the liver is also removed. As the animals experimented with were likely to die sooner in consequence of the two operations than after extirpation of the pancreas alone, the question arose as to whether or not the animals would live long enough to afford time for the development of the diabetes. To decide this point, a series of observations were made upon nineteen frogs. It was found that in the twelve of these in which diabetes developed, this appeared within the first day or two, the animals living on an average for five days. The proportion of sugar contained in the urine, as determined by polarization, equalled 0.4 per cent. In a second series of almost parallel cases, both liver and pancreas were removed, with the result that in not one of the animals did diabetes develop. These animals lived for from one to five days after the operation. The amount of urine excreted was considerable, though not so great as in the case of the animals from which only the pancreas had been removed. In explanation of the influence of the liver in the development of the diabetes that follows removal of the pancreas, it is suggested that there is formed in the liver a substance that, while not itself sugar, is yet of importance in the development of diabetes (perhaps a sugar-forming ferment), or that certain elements in the blood that are acted upon by the liver remain in the circulation after extirpation of this organ, and bring about decomposition of the sugar present after extirpation of the pancreas.

Quack Nurses.—Quackery is contagious and widespread. There are quacks not only in medicine, but the infection seems also to have invaded the profession of nursing. From Detroit comes the announcement of the organization of a "Correspondence School of Health and Hygiene," which proposes to give "instruction by the correspondence method in the care of the sick." The course of instruction, it is believed, "if thoroughly studied by a reasonably intelligent person, will render the pupil as truly a trained nurse as the great majority of those who come from the training schools. . . . No previous training or study is required other than the ability to read and comprehend." As to age, sixteen is not considered too young nor fifty too old. It needs scarcely be said that the art of nursing is not to be acquired by correspondence, from reading, or even from didactic lectures; these measures may aid in the comprehension of the principles upon which intelligent and rational nursing is based, but actual experience by the bedside, in the hospital-ward, and in the sick-room, is absolutely essential.

The Abuse of Dispensaries and Hospitals.—In an effort to correct the prevailing abuse of the privileges accorded by dispensaries and hospitals, the Medical Charities Committee of the British Medical Association has had printed notices for distribution among the institutions of London, with the request of display in a conspicuous place, stating that as these institutions have been "established to relieve only those persons who are too poor to pay for suitable medical and surgical aid, ... patients will be required to give information as to their means and circumstances, with a view to prevent the abuse of this charity by persons who are well able to pay." A canvass of the various institutions reveals the fact that the majority are in favor of the adoption of some such regulation as that proposed, many having already similar measures in operation; others have the matter under consideration, while none has absolutely rejected the propositions made. The example is one that American institutions could follow with advantage and dignity.

Immoral Massage.—The infectiousness and the wide distribution of evil practices is demonstrated by the fact that the revelations made by the *British Medical Journal* in connection with a form of immorality practised under the designation of massage, as noted in THE NEWS of August 4, have already been followed by the apprehension by our Philadelphia police of a number of persons on the ground of having engaged in practices of a similar character. The event also illustrates the important relation borne by the medical profession to the morals of a community.

The Infectiveness of Meat from Tuberculous Animals is a question concerning which there has been a good deal of discussion, without, however, unanimity in the conclusions reached by different observers. As the result of an analysis of the existing literature on the subject, LECLAINCHE (*Revue de la Tuberculose*, 1894, No. 3, p. 133) announces it as his belief that such meat may in certain cases be dangerous; but this is exceptional, and that even when so the danger is but slight.

SELECTION.

THE AMERICAN MEDICAL ASSOCIATION AND ITS JOURNAL.

AT the recent meeting of the American Medical Association, in San Francisco, a resolution was adopted seeking a personal interest of every physician in the country in the Association. This is a consummation devoutly to be wished if the American Medical Association will strive, as an organization, to be governed by the true principles of justice, ethics, and morals, so as to offer, in its associated effort, the true standard for the American medical profession. Any departure from this standard makes it desirable to restrict the influence of the Association in direct ratio to the amount of departure.

Because of this resolution and in a spirit of kindly criticism it is desired to point out a piece of dangerous sophistry in one of the most important documents presented to the Association. As the report was adopted by the Association and becomes its opinion, the power for harm is limited only by the influence the Association is able to exert.

It so happens that this position is taken because of previous criticism on the conduct of the *Journal* of the Association, and it has been asserted that the objections made were not honest in their purpose, but simply a covert attack to prevent the business success of the

Journal, instigated by a rival medical journal. . . . . It is believed that a false position has been taken, and the true and the good can never be attained by sophistry. . . . .

The parts to which exceptions are taken are the *reasons given* for accepting advertisements of a certain kind for the *Journal*. The Trustees say *apropos* of the conduct of the *Journal*: "The policy adopted was, that having entered upon the business of publishing a journal, we would be governed by the same rules followed by those considered reputable who were engaged in the same business." If the American Medical Association is publishing its *Journal* for the *business* there is in it, the sooner it gives up the business and confines itself to its proper sphere, the better for all parties concerned. As well might the Association order the Trustees to operate a factory for the preparation of medicines. If the Association publishes its *Journal* for the benefit of the members in presenting the transactions and other articles of value to its readers, there may be many a "business scheme" judged legitimate on the street that would and should be beneath the tone of the American physician to adopt. Whatever the standard of the other American weeklies may be, they do not, of necessity, afford precedent nor excuse for a journal of the profession, by the profession, for the profession. . . . .

It is not to be inferred that the methods employed by other journals ought not to be studied, nor that they cannot be servilely copied if that is deemed best; the point to be emphasized is that the responsibility for any method adopted in the conduct of the *Journal* cannot be shifted either to the nervous backs of American publishers or the brawny shoulders of our cousins on the other side. The responsibility rests solely upon the Trustees, and the standard by which judgment will be measured is the standard of right, and not of the example of other men. A generalization of this reasoning will permit of any practice however despicable, since "those considered reputable" by the person desiring to do the act can certainly be found.

This article does not propose to discuss the rectitude of admitting the advertisements objected to, as this phase of the question is nowhere suggested in the report.

The second reason advanced savors of a mild flattery, possibly pleasant in inverse ratio to its truth. The readers of the *Journal*, it says in effect, are sufficiently wise as to what will serve their own interests, and no care need be taken by the Trustees as long as they do not permit reading notices. Use the same argument under slightly changed circumstances to get its full meaning. The readers of the religious weeklies comprise the more intelligent portion of the community; they are "capable of discriminating as to what would serve their interests," why should the management exclude the advertisements of "Blowhard's Asthmatic Balsam," "Sneezeham's Catarrh Conqueror," or any of the other numerous remedies of that nature. Business men ordinarily do not advertise merely for sentiment; if they thought that the readers of any journal would in the exercise of their discrimination abstain from purchasing their wares it would be difficult to secure a renewal of the contract from that house.

The third argument may be seen in the following: "Had the apparent intention of those who censure our action been established, we would be obliged to present you to-day a considerable financial deficit." It is fair to infer the possibility of an exclusion of these advertisements were it not for fear of this deficit, and that a sum of money was, after all, the impelling motive for the action of the Trustees and this, their defence. Let us then examine the accounts and try to estimate the price asked for the tacit influence of the *Journal*. According to the report the net receipts were $14,969.67, and a balance of $1885.10. This means that $13,084.67 was needed to supplement the appropriation from the general treasury. The Treasurer's report shows an increased balance over the previous year of $462.85, which makes the actual sum needed but $12,621.72. This is the *maximum* price at which the *Journal* is held; but most of the advertisements are unobjectionable; the threatened deficit is very much smaller than this, and the price is correspondingly reduced.

The outcome of this analysis of the arguments of the Trustees enables the following tabulation of the principles of the conduct of the *Journal*:

I. If journals "considered reputable" are pursuing a certain line of policy, we will follow regardless of ethics or morals.

II. If we believe our readers to be able to discriminate "as to what would serve their interests," it is no concern of ours as to the character of the advertisements received, if we do not "puff" them.

III. If it is necessary to make the *Journal* pay its way, we are willing to sell its pages to accomplish this. Our price for the past year was less than $10,000.00; rather a small price for the *Journal* of the American Medical Association if it should be bought at all.

It is not necessary to moralize upon this; the simple statement of the arguments advanced, cleared from the beclouding rhetoric of the report, permits the lessons to be easily seen.—*Lehigh Valley Medical Magazine*, vol. v, No. 4, p. 214.

REVIEWS.

Medical Jurisprudence, Forensic Medicine, and Toxicology. By R. A. Witthaus, A.M., M.D., Professor of Chemistry, Physics, and Hygiene in the University of the City of New York, and Tracy C. Becker, A.B., LL.B., Counsellor-at-Law and Professor of Criminal Law and Medical Jurisprudence in the University of Buffalo. In four volumes. Vol. I. Large 8vo., pp. 845. Illustrated with woodcuts and two lithographic plates in colors. New York: Wm. Wood & Co.

On entering upon the publication of an extensive treatise in this field, the publishers have acted wisely in providing legal as well as medical editorship, and in securing the services of numerous collaborators. Such methods, of course, are seen in all fields of science; departments that had just become specialties a score of years ago, are now subdivided into specialties, and when we note this increasing tendency we are reminded of the story of the grammarian who had devoted his life to the study of the Greek definite article, and on his deathbed regretted that he had not limited himself to the dative case of it.

The introduction, comprehending nearly three hundred pages, discusses the legal relations of physicians and a summary of the laws governing the practice of medicine. It is in this latter portion that we can notice a considerable advance. Twenty years ago such a chapter would have been very brief, as there were but few laws on the subject. The information furnished is concisely arranged and makes interesting reading. One of the most valuable chapters is that on the rules and practice of courts concerning communications between physician and patient. It is pointed out in the concluding remarks of the chapter, that the laws making such communications "privileged," that is, not allowed to be disclosed in court, are by no means unalloyed benefits, as the full presentation of facts is often prevented.

The medical part of the volume is largely devoted to the various causes of death other than poisoning; this latter, of course, will be fully considered in a subsequent volume. As another evidence of progress, we note some thirty pages devoted to the effects of electricity, in which lighting and motor currents are fully considered.

Ample space is given to the description of the methods of conducting *post-mortem* examinations and to questions of identity.

Not the least valuable part of the work rests in the fact that it utilizes fully the extended experience of the courts of the United States, and thus presents to the American physician a more vivid picture of medical jurisprudence than can be obtained from works exclusively foreign.

Except in the chapter on wounds, there is little opportunity in the present volume for illustrations, but it contains two excellent colored plates. There is a little confusion in the explanation of Plate II, which shows an *ante-mortem* and two *post-mortem* burns.

The general typography of the work is good, and it may be expected to take a high rank among the manuals of its class.

Die causale Behandlung der Tuberculose: experimentelle und klinische Studien. Von Edwin Klebs. Mit eine Photogravure, sieben farben- und neunzehn Kurventafeln, vier Figuren im Text und einen statistischen Beilage. 8vo., pp. 629. Hamburg und Leipzig: Leopold Voss, 1894.

The active interest that the author has taken, not alone in the study of the pathology of tuberculosis, but, since the introduction of tuberculin, in its therapeutic management, speaks for the value of the book as a contribution to the literature of the subject.

The work is divided into two parts:

Part I deals with the general pathology of tuberculosis, including the history of the disease, the course of the disease, the action of tuberculin upon animals, the histology of healing tuberculous lesions, and the chemical constitution of Koch's tuberculin, with methods of purification and its physiologic activity.

Part II considers the treatment of tuberculosis in man with bacterial products; the bacterio-therapy of tuberculosis, including a comparative study of tuberculosis in man and in animals; the classification of tuberculous processes in man according to their stages of development; the "first, second, third, and fourth" stages of tuberculosis; *tuberculocidin* and its employment in the treatment of tuberculosis; Appendix I, reports of other physicians upon the treatment with *tuberculocidin;* II, supplementary observations, etc.

From the headings cited it is manifest that the book contains much of practical interest. Tuberculocidin, the body obtained by Klebs from cultures of tubercle-bacilli, and used in the treatment of tuberculosis, is, according to him, the active therapeutic agent contained in crude tuberculin. It is obtained from tuberculin by chemical processes, and is claimed to be entirely free from the substances to which may be attributed the undesirable results frequently occurring from the use of ordinary tuberculin.

Methods of Pathological Histology. By C. von Kahlden, Assistant Professor of Pathology in the University of Freiberg. Translated and edited by H. Morley Fletcher, with an Introduction by G. Sims Woodhead. Pp. 171. London and New York: Macmillan & Co., 1894.

This excellent treatise, which first appeared as a supplement to Ziegler's *Allgemeine und specielle Pathologische Anatomie*, will in its translation be welcomed by pathologic histologists of this country and England. With admirable judgment the author has embodied in his book only such methods as are practically useful, and not those long since abandoned. He prefers celloidin to paraffin for purposes of imbedding. It is, however, not necessary, we think, to use two solutions as recommended. A single solution, of medium consistence, will be found sufficient, even for such delicate tissue as the lung.

The author rightly deprecates staining in bulk, a method gradually falling into disuse, as "special color-reactions corresponding to definite tissue-changes," are discovered. The various methods of staining are given concisely, but with sufficient minuteness for practical application in the laboratory. The chapter on the examination of bacteria is an excellent one. We are somewhat surprised, however, to note that under Gabbet's method of staining the tubercle-bacillus, immersion in cold carbol-fuchsin for only two minutes is recommended.

The methods for examining the blood receive proper attention. Preference is given to Toison's fluid for diluting the blood in counting the corpuscles.

A brief chapter on microscopic examination for medico-legal purposes is added, and will be found useful. We can recommend the book, the translation of which is excellent, as one of the best guides in pathologic histology.

Diseases of the Skin. An Outline of the Principles and Practice of Dermatology. By Malcolm Morris, Surgeon to the Skin Department of St. Mary's Hospital, London, etc. With 8 chromolithographs and 17 woodcuts. Pp. 556. Philadelphia: Lea Brothers & Co., 1894.

The author states in his preface that he has endeavored to set forth the clinical facts and the principles of treatment of skin-diseases based on the result of modern research as to their causes. The work is essentially

clinical and practical in its scope, for more extended details of morbid anatomy the reader being referred to the larger treatises on the subject.

We have no hesitation in saying that the book contains a complete summary of our knowledge of skin-diseases, and that the subject has been presented in an attractive form. The matter is quite up to date, and there are sufficient references to the studies of other observers to make the reading interesting. The book is not large, but there is a great deal in it. The information is for the most part just such as the physician in general practice requires to aid him in understanding the pathology and treatment of cutaneous diseases. In following the teaching of Mr. Morris the student or medical man may be assured that he is in safe hands. The book is one of the best of the day.

A number of original excellent chromo-lithographic plates from the author's cases add value to the work. They are from the brush of the well-known English medical artist, E. Burgess, Esq., who has done so much to depict English cutaneous medicine. There is only one criticism to make concerning this artist's work, and that is that the coloring is usually too high.

The Nurse's Dictionary of Medical Terms and Nursing Treatment. By Honnor Morten. Philadelphia: W. B. Saunders.

In glancing over this booklet our eye has caught many things similar to the following:

Cesarean (spelled *Caesarian*) *Section* is said to have been "first performed by a Dublin midwife." Of *Cataract*, "the operation is usually iridectomy." Of *Cleft Palate*, the nurse is told that "the child must be sat (*sic*) upright when fed, and a long teat employed, and the milk poured slowly to the back of the throat. It cannot suck, as it cannot create a vacuum, and the milk is liable to return down the nose. Operation usually takes place about two or three years of age." As to *Neurasthenia*, "it (the treatment) may include seclusion, in which case we get on to Weir Mitchellism"—a subject the author also fears to tackle in any other place. *Vivisection* is defined as "scientific internal examination of a living animal;" the *Argyll-Robertson Pupil*, "one which does not contract when subjected to light;" and the *Equator Oculi* as "the line formed by the lids when the eye is closed."

Lectures on Auto-intoxication in Disease, or Self-poisoning of the Individual. By Ch. Bouchard, Professor of Pathology and Therapeutics, Member of the Academy of Medicine, and Physician to the Hospitals, Paris. Translated, with a Preface, by Thomas Oliver, M.A., M.D., F.R.C.P., Professor of Physiology, University of Durham; Physician to the Royal Infirmary, Newcastle-upon-Tyne; and Examiner in Physiology, Conjoint Board of England. 8vo., pp. 302. Philadelphia: The F. A. Davis Co., 1894.

As the title indicates, the matter contained in this book represents a series of lectures upon the self-poisonings or auto-intoxications to which individuals are liable through processes of malfermentation that may occur in the intestinal tract. In very recent times this subject has attracted considerable attention, particularly in its bearing upon the induction of susceptibility to specific infections, and the opinion, supported by pretty strong argument, is now being advanced that specific infective processes of the alimentary tract are usually, if not always, preceded by lowering of tissue-resistance through either the local or constitutional action of poisons resulting from excessive fermentation, or from the occurrence of abnormal fermentative processes, the products of which act as direct poisons to the animal organism.

A large portion of the book is given to the consideration of the toxic products in urine, a subject to which Bouchard has paid special attention. The toxicity of the fluids and of the other contents of the intestines receives careful consideration, and the poisonous processes accompanying typhoid fever and cholera are also taken up in detail.

The subject is interesting, instructive, and of the utmost importance, and the book contains much upon which we can reflect with profit.

Report of the Commissioner of Education for the Year 1890–91. Two volumes, pp. xxx, 1514, and Index. Washington: Government Printing Office.

These volumes contain a large amount of statistical and descriptive matter concerning general education, both foreign and domestic, but not much of direct interest to medical teachers. The important points bearing on medical education have already been made generally known through essays by Dr. Bayard Holmes. It is to be regretted that the publication appears so tardily. It would be quite impossible to even summarize in the space available here the topics covered in the two volumes. In an account of the development of education in Southwestern Virginia, the work of Thomas Jefferson is referred to with much praise. A considerable amount of space is given to the topic of legal education in this country and in Europe.

NEWS ITEMS.

Meetings of Philadelphia Medical Societies:

	Meets.	Next meeting.
Academy of Surgery,	1st Monday of month, Oct.—June.	Oct. 1
College of Physicians,	1st Wednesday of month, Sept.—June.	Oct. 3
Section of Ophthalmology,	3d Tuesday of month, Sept.—May.	Sept. 18
Section of Orthopedic Surgery,	3d Friday of month, Oct.—April.	Oct. 19
Section of Otology,	1st Tuesday of month, Oct.—May,	Oct. 2
Section of Surgery,	2d Friday of month, Oct.—May.	Oct. 12
County Medical Society,	2d and 4th Wednesdays of month, Sept.—June.	Sept 12
Neurological Society,	4th Monday of month, Oct.—April.	Oct. 23
Obstetrical Society,	1st Thursday of month, Sept.—June.	Sept. 6
Pathological Society,	2d and 4th Thursdays of month, Sept.—June.	Sept. 13

Meetings of State and National Medical Societies:

	Meets.	Next meeting.
American Academy of Medicine.	Aug. 29, 30	Jefferson, N. H.
American Association of Genito-urinary Surgeons.	May 28–31, 1895	Washington, D. C.
American Association of Obstetricians & Gynecologists.	Sept. 19–21	Toronto, Ont.
American Electro-therapeutic Association.	Sept. 25–27	New York City.
Association of Military Surgeons of the United States.	May, 1895	Buffalo, N. Y.
Canadian Medical Association.	September	St. John, N. B.
Idaho State Medical Society.	Sept. 10–12	Boise, Idaho.
Illinois State Medical Society	May 21, 1895	Springfield, Ill.
International Congress of Hygiene and Demography.	Sept. 2–9	Budapest, Austria.
Medical Association of the State of Alabama.	April 16–19, 1895	Mobile, Ala.
Medical Society of the State of California.	April 16, 1895	San Francisco, Cal.
Medical Association of Georgia.	April 17, 1895	Savannah, Ga.
Medical Society of the State of New York	Feb. 5, 1895	Albany, N. Y
Medical Society of the State of Pennsylvania.	May 21, 1895	Chambersburg, Pa.
Medical Society of the State of Tennessee.	April 9, 1895	Nashville, Tenn.
Medical Society of Virginia.	October.	Richmond, Va.
Medico-Legal Society.	Dec. 12	New York.
Mississippi Valley Medical Association.	Nov. 20–23	Hot Springs, Ark.
New Hampshire Medical Society.	May 30, 31, 1895	Concord, N.H.
New Mexico Medical Society.	September.	Albuquerque, N. M.
New York State Medical Association.	October 9–11	New York City
Ohio State Medical Society.	May 15, 1895	Columbus, O.
Southern Surgical and Gynecological Association.	Sept. 13–15, 1894	Charleston, S. C.
Texas State Medical Society.	April 23, 1895	Dallas, Tex.
Tri-State Medical Society.	October 9–11	Atlanta, Ga.
Vermont State Medical Society.	October 11, 12	Montpelier, Vt.

The Cholera.—One new case of cholera and one death were reported in Haarlem on August 12th, and six new cases in five other towns in Holland. Two new cases were reported at Amsterdam on August 13th, and one in Utrecht; one death in Zaandam and one in Beverwyck. The disease is also said to be spreading in Czornowitz, the capital of Bukowina. A death from cholera was reported on August 12th at Nippes, two miles from Cologne. There were reported in St. Petersburg, from August 5th to 11th, 156 cases of cholera and 101 deaths. Forty-five cases of cholera and fifteen deaths were reported in the Johannisburg district of Prussia up to August 12th. Eleven cases of cholera and seven deaths from the disease were reported in the Dantzig district on August 14th.

The Plague.—It is reported that Kitasato, the distinguished bacteriologist, who was sent by the Japanese Government to investigate the epidemic in China, has discovered what is believed to be the specific etiologic factor of the plague. This is described as a bacterium resembling that of chicken-cholera, appearing joined in pairs, found in the blood both during life and after death, and which, inoculated upon lower animals, gives rise to symptoms resembling those of the original disease, and terminating fatally.

The Consulting Staff of the Wernersville Hospital for the Chronic Insane has been constituted as follows:

Physicians: Dr. William Pepper, Philadelphia; Dr. William W. Guilford, Lebanon; Dr. W. F. Muhlenburg, Reading.

Surgeons: Dr. DeForest Willard and Dr. William W. Keen, Philadelphia; Dr. W. Murray Weidman, Reading.

Gynecologists: Dr. Anna E. Broomall and Dr. Florence Q. McQuaide, Philadelphia.

Ophthalmologist: Dr. Charles A. Oliver, Philadelphia.

Neurologists: Dr. Wharton Sinkler, Dr. James Hendrie Lloyd, and Dr. Francis X. Dercum, Philadelphia.

The Staining of Tuberculous Sputum.—We are informed that Dr. A. L. Benedict, of Buffalo, is at work on a method of staining tuberculous sputum in bulk, so as to obviate the manipulation of the cover-glass and allow the suspected material to be deposited on the slide from a pipet.

The American Gynecological and Obstetrical Journal is the name by which the New York *Journal of Gynecology and Obstetrics* will hereafter be known.

Max v. Pettenkofer has resigned the chair of hygiene in the University of Munich, and has been succeeded by Hans Buchner.

BOOKS AND PAMPHLETS RECEIVED.

The Relation or Coincidence of Diseases of the Upper Air-passage to those of the Genito-urinary and Rectal Organs. By J. G. Carpenter, M.D. Read before the Mississippi Valley Medical Association. Cincinnati, 1892.

Lehmann's Medicin. Hand-Atlanten. Band IV: Atlas der Krankheiten der Mundhöhle, des Rachens und der Nase. Von Dr. Ludwig Grünwald. München: Verlag Von J. F. Lehmann, 1894.

A Supplementary Paper upon Supra-vaginal Hysterectomy by the New Method, with Report of Additional Cases. By B. F. Baer, M.D. Reprinted from the Transactions of the American Gynecological Society, Vol. XVIII, 1893.

Treatment of Myopia without Glasses. By W. H. Bates, M.D. Reprinted from the Medical Record, 1894.

Tumors, Innocent and Malignant. By J. Bland Sutton, M.D. Philadelphia: Lea Brothers & Co., 1893.

A Case of Ringworm of the Scalp Simulating Alopecia Areata. By Henry H. Whitehouse, M.D. Reprinted from the Journal of Cutaneous and Genito-Urinary Diseases, 1893.

State and Municipal Control of Infectious and Contagious Diseases. By John Winters Brannan, M.D. Reprinted from the Medical Record, 1893.

Incompatibility. Lecture delivered before the Medical and Pharmaceutical Students of the University of Texas. By James Kennedy, Ph.G., M.D. Galveston, 1893.

The Absorption of Immature Cataract, with Restoration of Vision. By J. Hobart Egbert, A.M., M.D., Ph.D. Reprinted from Notes on New Remedies, 1893.

The Forms of Peritonitis, their Relation to Appendicitis, and the Etiology of Each. By Roswell Park, A.M., M.D. Reprinted from the Medical Age, 1894.

A Critical Review of the Seventh Decennial Revision of the Pharmacopeia of the United States of America. By George M. Beringer, A.M., Ph.G. Reprinted from the American Journal of Pharmacy, 1894.

Report of a Case of Cerebral Tumor, Diagnosed by Focal Symptoms, with Operation; Successful Removal of Tumor and Exhibition of Specimen. By D. A. K. Steele, M.D. Reprinted from the Journal of the American Medical Association, 1894.

Bibliography of College, University, and Social Settlements. Compiled by M. Katharine Jones. Pamphlet.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXV. SATURDAY, AUGUST 25, 1894. No. 8.

ORIGINAL ARTICLES.

A CONTRIBUTION TO THE STUDY OF THE ACTION OF CHLOROFORM.[1]

BY EDWARD RANDALL, M.D.,
PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS IN THE UNIVERSITY OF TEXAS, ETC.,

AND

DAVID CERNA, M.D., PH.D.,
DEMONSTRATOR OF PHYSIOLOGY AND LECTURER ON THE HISTORY OF MEDICINE IN THE UNIVERSITY OF TEXAS, ETC.

WE firmly believe that a clear understanding of the physiologic actions of chloroform on both the circulation and the respiration, especially as regards the relations existing between these two functions under the anesthetic, independently of the influence exercised by the drug on the nervous system, is not only of the deepest interest to the physiologist, but also of the greatest practical importance to the clinician. Through failure of which one of these two vital functions, the circulation or the respiration, does chloroform bring about a fatal result? This is the question at issue, a question of absorbing interest.

There are both surgeons and physicians who boast of never having met with a single death under chloroform-anesthesia. Yet, under the keenest observers and the most careful anesthetizers, death has occurred unexpectedly and in an inexplicable manner, even before the operator had an opportunity to use the knife, and in these cases the fatal result could not be ascribed to surgical shock. The statistics so far published regarding the percentage of deaths caused by chloroform, although valuable to a certain extent, are practically unreliable, and for reasons that need not be discussed here from fear of prolixity. It has been stated somewhere that Billroth met with his first death after 12,500 successful chloroformizations. We have the authority of Wood[2] for saying that according to Lyman the ratio of deaths in chloroform-anesthesia is 1 in 3860, while Richardson puts it at 1 in from 2500 to 3000. Neve[3] has reported 3000 chloroform-administrations without a single death, and Henderson[4] gives 12 deaths as occurring in 17,666 inhalations by the drug. In an exhaustive collection of chloroform-administrations, Julliard[1] reports 161 deaths in 524,507, or 1 in 3258 anesthesias. Foy[2] publishes a total of 877,507 chloroform-inhalations, with a mortality of 204, that is 1 in 4301. Valuable statistics have been presented by Gurlt:[3] in 94,123 administrations there were 36 deaths, or 1 in 2614; before this he had collected 6 deaths in 22,656 inhalations, or 1 in 3776.[4] Quite recently, Gurlt[5] has reported 46 deaths in 133,729 chloroform-administrations.

Be all this as it may, it is certain that the question of how chloroform kills remains practically a mooted one; and this is our chief excuse for trespassing upon the patience of the profession by offering the results of our individual experience in the matter—an experience based on a special research on the lower animals. Our investigation is not perhaps an elaborate one, but the uniformity of the results obtained in our experiments is sufficient, we believe, to justify us in expressing an opinion somewhat, though not wholly, contrary to the one we had previously entertained. We hope our confrères will express their individual experience and views upon the question, especially from clinical observations, and thus contribute to the elucidation of a subject so ably treated experimentally by authorities like Lauder Brunton, Wood, Hare, and others.

Before the report of the first Hyderabad Commission, it had been the general belief among clinical observers that chloroform destroyed life mainly through cardiac failure. The Hyderabad Commission, however, from a series of experiments upon the lower animals, affirmed that the drug killed by an action upon the respiration, a statment that met with considerable opposition. As a consequence, a second Hyderabad Commission, headed by Lawrie and Lauder Brunton, under the auspices of the Nizam's government, reinvestigated the subject, and, with slight differences, arrived practically at the same conclusions—that is, that chloroform always arrested the respiration before the heart.[6] This almost unqualified statement led Wood and Hare[7] to restudy the matter, and from experiments made by administering the drug either by inhalation or intravenously, it

[1] Presented to the Section on Surgery of the Texas State Medical Association, at Austin, April, 1894.

[2] THE MEDICAL NEWS, August 9, 1890.

[3] British Medical Journal, February 8, 1890.

[4] Glasgow Medical Journal, November, 1890.

[1] Medical Press and Circular, May 27, 1891.

[2] Ibid., June 3, 1891.

[3] Centralbl. für Chirurgie, August 13, 1892.

[4] Archiv für klinische Chirurgie, 1891.

[5] Revue de Chirurgie, November, 1893.

[6] Lancet, London, January 18, 1890.

[7] THE MEDICAL NEWS, February 22, 1890.

was found that the anesthetic had a direct, distinct, and paralyzing influence on both the circulation and the respiration; that the respiration might cease before the heart, or that both cardiac action and the respiration might stop together; and, finally, that in some instances the heart was arrested before the respiration, the latter at times continuing as long as one and even two minutes after the blood-pressure had reached the abscissa-line.

Cushny,[1] from the results of another experimental research, could not agree with the Hyderabad Commission, that the heart always continued to beat after respiration ceased, and found it very difficult to maintain the concentration of the chloroform necessary to paralyze the heart simultaneously with the respiration, believing from this that such a simultaneous arrest can never occur. A similar view is entertained by Buxton,[2] an eminent authority on anesthesia, who believes that in the human subject at least death takes place during chloroformization from cardiac paralysis.

In his address on "Anesthesia" before the Tenth International Medical Congress, held at Berlin, Wood[3] reported another series of experiments made by himself, and again drew the conclusion that chloroform is capable of causing death by either primarily arresting the respiration or by primarily stopping the heart, but that commonly both the cardiac and respiratory functions are abolished at or about the same time. An identical opinion is expressed by McWilliam.[4] This investigator concludes, from his experiments, that though the respiration generally ceases before the heart, cardiac failure sometimes occurs long before the respiration is arrested.

The latest research upon this subject of which we are aware is the very elaborate one of Hare and Thornton,[5] made under the auspices of the Nizam's government. These investigators believe that the question can be settled by the acceptance of both views in a modified form; or, in other words, that there is no real antagonism in the belief that chloroform kills by depression of the heart or by depression of the respiration. They very positively assert that chloroform practically always kills by failure of the respiration when administered by inhalation, provided (and this they consider a most important provision) that the heart of the anesthetized is healthy and has not been rendered functionally incompetent by fright or violent struggles; or, again, by marked asphyxia. And as positively as they assert that the drug destroys life by primarily causing failure of the respiration, they also assert that in excessive doses by inhalation chloroform has a depressant effect on the circulation, which is chiefly due to centric vasomotor depression, with final depression of the cardiac muscle itself.

Before such a mass of contradictory experimental evidence, what are we to believe? We might venture to say by way of preface to our own conclusions in the matter, that, in the face of the discordant results obtained in the laboratory so far, every medical man, in administering chloroform to the human subject, should follow his own good judgment and study carefully each individual case. It is disastrous in many instances to blindly follow, by a sort of routine practice, the teaching of this or that authority. But we shall discuss this point later.

During the past winter we have conducted a series of experiments exclusively on dogs, and without paying particular attention to the manner by which the various phenomena on the circulation and respiration are brought about under the action of chloroform (a subject that has already been investigated by a host of able experimenters). It has been our chief aim to study how death is produced by the drug primarily, whether by failure of the respiration or by cardiac paralysis. The anesthetic was administered by *inhalation* exclusively, in a concentrated form, through the *nostrils*. For this purpose a common towel-cone was used, and both the respiratory movements and the circulatory changes were registered at the same time upon the revolving drum. We confess that we began our experiments somewhat prejudiced, not to say entirely so, in favor of death by primary cardiac paralysis through the action of chloroform, but the results obtained told a different story. For the sake of illustration we detail the following experiments:

For Experiment I a small dog was used. At the beginning of the inhalation the blood-pressure was 156 mm.; the heart showed a rate of 192 per minute and the respiration 36 per minute. One minute after the inhalation had been instituted, the respiratory movements jumped to 60 per minute, and both the pressure and the rate of the pulse were reduced. The number of respirations became 90 per minute a minute and a half later, and the pulse-rate and the arterial pressure continued still lower. In five minutes more, although the respiration was irregular, the movements marked by the needle were 72 per minute; at this point the pressure was found to be 110 mm., while the heart was still beating 144 times per minute. Gradually the respiration then became full, deep, and slow, and four minutes later only twelve movements were registered upon the drum; three minutes afterward the animal was breathing four times a minute only, the blood-pressure

[1] Lancet, London, March 14, 1891.
[2] Ibid., December 20, 1890.
[3] THE MEDICAL NEWS, August 9, 1890.
[4] British Medical Journal, October 11, 1890.
[5] Therapeutic Gazette, October 16, 1893.

EXPERIMENT I.—SMALL DOG.

Continuous inhalation. Carotid artery used for connection with manometer. Respiratory tambour connected with trachea by means of a rubber tube.

Time, m. s.	Pressure, mm.	Pulse, p. min.	Respiration, p. min.	Remarks.
0	156	192	36	
1.00	148	184	60	
2.30	136	180	90	
7.30	120	156	72	Respiration irregular.
9.30	110	144	54	Respiration irregular but deep.
10.30	90	128	30	Respiration full and deep.
13 30	80	108	12	Pulse-waves somewhat larger than at first.
16.00	62	92	4	
16.30	50	86	...	Respiration ceased; blood-pressure going down steadily.
17.00	32	40	...	Pulse very small.
18.30	10	68	...	Pulse continues very small.
19.00	...	...	...	Heart still beating about once or twice a minute.
20.00	...	...	...	Applied artificial respiration for about three minutes, by compressing chest, when both the respiration and the heart's action were brought back. Under another inhalation of the drug, death ensued, the breathing, as before, stopping first.

EXPERIMENT II.—DOG, WEIGHT 10 LBS.

Carotid artery connected with manometer.

Time, m. s.	Pressure, mm.	Pulse, p. min.	Respiration, p. min.	Remarks.
0	140	210	30	
2.40	138	212	30	Inhalation begun.
2.30	90	132	60	
3.30	80	108	48	
5.40	50	92	18	
6 00	32	80	2	Pulse-waves somewhat larger than normally.
6.30	12	30	...	Breathing ceased.
7.40	8	48	...	
8.00	8	62	...	Pulse very small.
8.15	...	...	...	Heart stopped in diastole; remained irritable: blood very dark.

EXPERIMENT VI.—DOG, WEIGHT ABOUT 15 LBS.

Carotid artery connected with kymograph.

Time, m. s.	Pressure, mm.	Pulse, p. min.	Respiration, p. min.	Remarks.
0	120	142	32	Began inhalation.
1.00	118	126	36	
1.40	80	112	42	
2.30	60	90	44	
3.00	52	84	42	Stopped chloroform.
6.00	110	126	42	Resumed chloroform-inhalation.
6.30	100	120	40	
8.00	70	98	40	
8.30	60	80	32	
9.40	32	92	16	
10.00	20	80	8	
12.00	...	...	...	Both respiration and heart stopped simultaneously. Artificial respiration had no effect.

EXPERIMENT VII.—DOG, WEIGHT ABOUT 18 LBS.

Femoral artery connected with kymograph. Continued inhalation of chloroform.

Time, m s.	Pressure, mm.	Pulse, p. min.	Respiration, p. min.	Remarks.
0	140	180	30	
0.15	110	150	30	
1.00	56	96	36	
4.00	40	90	36	
5.00	32	78	20	Respirations deep.
6.30	20	38	8	
9.30	20	36	...	Respiration suddenly stopped.
10.30	10	24	...	
11.30	...	...	...	Heart still beating about four or six times a minute; it soon ceased. Opened chest; heart was found in diastole, full of black blood, and irritable to mechanical stimulation. On making disconnection, very dark blood continued to flow from femoral artery, the color of the fluid being evidently due to the asphyxia produced.

being 62 mm., and the rapidity of the cardiac beat 92 per minute. In half a minute more the breathing stopped, and then the rate of the pulse, with slight variations evidently due to cardiac weakness, and the arterial pressure continued to sink, and in two minutes afterward the needle of the manometer stood still at the abscissa-line; but it was noticed that about once or twice a minute a curve could be registered upon the cylinder, the result of cardiac activity. When the animal was thus dead to all intents and purposes, the chloroform was removed and artificial respiration applied. This was done for about three minutes, by manual rhythmic compression of the chest, the tongue at the same time being pulled out with a hook; and following this operation both the respiration and the heart's action were brought back; in other words, the animal was resuscitated. After a sufficient time, when the two vital functions may be said to have been thoroughly reëstablished, inhalation of chloroform was again applied, and similar phenomena to those described were observed, death taking place from failure of the respiration.

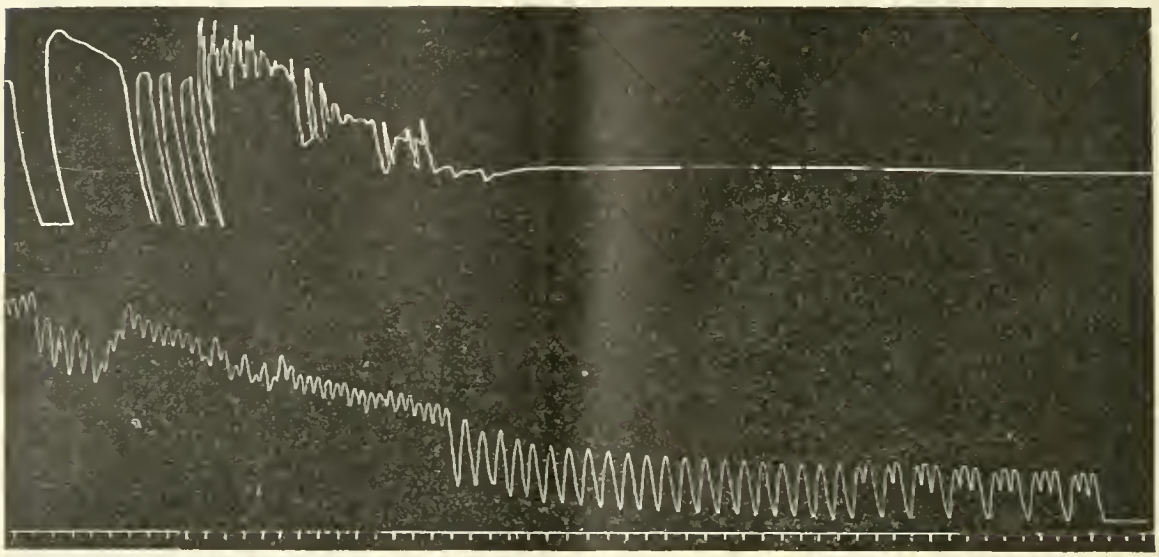
Identical phenomena were noticed in Experiment II, but (although the animal was larger and weighed more than that of Experiment I) the deleterious effects appeared sooner. In six minutes after the beginning of the inhalation, the blood-pressure was 32 mm. (originally 140 mm.) and the cardiac rate 80 per minute (originally 210 per minute). The respiratory rate, which from 30 had been raised to 60—that is, had been doubled shortly after the commencement of the chloroformization—was by this time depressed to 2 per minute, and half a minute afterward the respiration ceased, the heart continuing to beat for about one and three-quarters of a minute longer. The chest of the animal was immediately

opened, and it was found that the heart had stopped in diastole, its cavities being full of dark blood and still responding to mechanical irritation.

Experiments III, IV, and V gave exactly the same results. The respiration in each case ceased before the action of the heart.

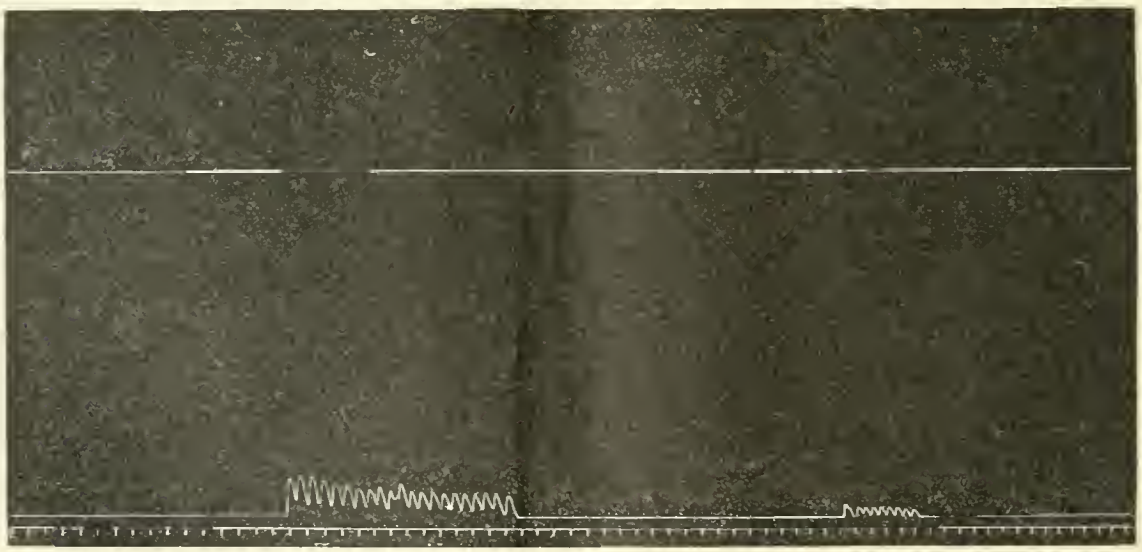
however, that the inhalation of chloroform was purposely interrupted at a period when the circulation had been considerably depressed. The withdrawal of the vapor was followed by a decided tendency of the blood-pressure and the heart's action to assume their original condition; but before this was com-

FIG. 1.



Tracing showing how chloroform causes death by respiratory paralysis. Upper line represents respiratory movements; middle line, blood-pressure and pulse; lower line, abscissa and time in seconds.

FIG. 2.

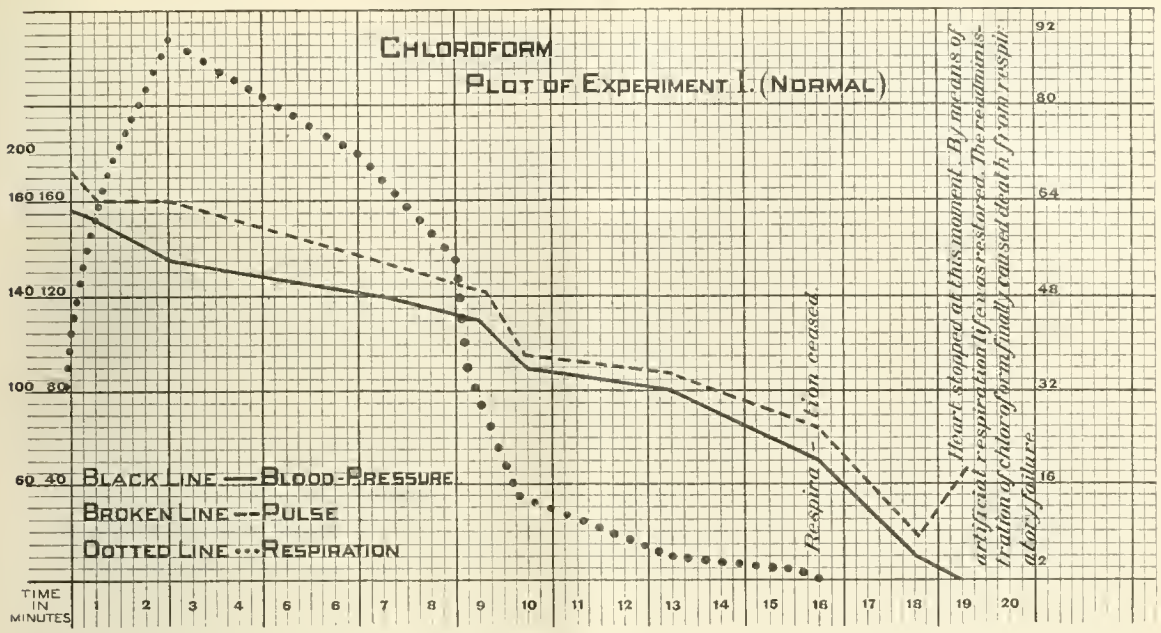


The same tracing without interruption. It will be seen that the heart ceased one minute and a half *after* the respiration.

A dog weighing about fifteen pounds was used for Experiment VI. In this instance the results were different—that is, simultaneous arrest of the heart and the respiration was observed. It may be stated,

pletely established, the inhalation of the anesthetic was resumed and the changes produced closely observed. It was seen that both pulse-rate and arterial pressure went down *pari passu* with the depression

Fig. 3.

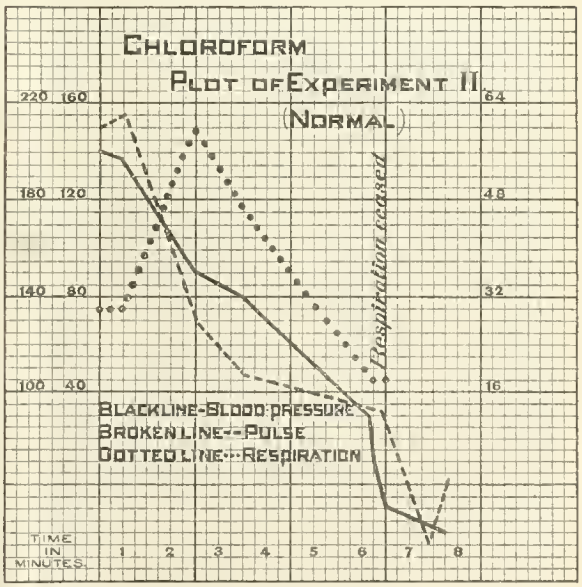


of the respiration. Six minutes after the beginning of this second inhalation, both needles, that of the tambourine and that of the manometer, came to a standstill *simultaneously*. Artificial respiration was then applied vigorously, according to the method described, but all our efforts in this direction were of no avail. Although there appeared some reflex respiratory movements and an occasional heart-beat, life could not be restored.

For Experiment VII a medium-sized dog was used. The experiment was performed before Professors William Keiller and James E. Thompson, of the University of Texas, and in the presence of the medical students of the third-year class, Professor Keiller himself administering the chloroform. The same results were produced. Following the inhalation of the drug, a lowering of the arterial pressure and of the rate of the pulse was observed. The respiration was, as usual, slightly increased in rate at first, becoming depressed soon afterward. A lowering of the blood-pressure and of the cardiac and respiratory rates was then progressive until the occurrence of death, this taking place distinctly and directly through failure of the respiration, the heart continuing to beat for about a minute and a half longer.

One of our experiments (No. V) was also witnessed by Dr. H. C. Cooke, of Galveston (and likewise of the University of Texas), who, though convinced of the accuracy of the experiment and the, to him, unexpected result of death from respiratory failure, still maintained that interference with the circulation at the base of the brain by tying the carotid artery might have some influence in enhancing, at least, the death of the respiratory before that of the cardiac centers. This, we contended, had little

Fig. 4.



or nothing to do with the result, as in the experiments of other investigators, in which the carotid artery had been frequently used for the kymograph-connection, death is reported to have occurred also primarily through cardiac paralysis. To further satisfy ourselves of this, however, and to put aside objections such as that offered by Dr. Cooke, we

made experiments by using the femoral artery for connection with the manometer. In this manner no direct interference could be had with the circulation at the base of the brain. In these cases the results were similar—that is, failure of the respiration, as exemplified by Experiment VII, detailed also in tabular form.

In this experiment, in less than one minute both the height of the pressure and the rate of the cardiac beat were distinctly diminished, although the respiration was practically unaffected. In the course of about four minutes the respiration became somewhat accelerated, the pulse-rate and the blood-pressure continuing to decline. Soon afterwards the respirations became considerably slower, having been reduced from 36 to 20 per minute. This respiratory depression continued *pari passu* with that of the arterial pressure and the pulse, and about four minutes and a half later the animal stopped breathing suddenly, but the needle of the manometer continued to write upon the revolving cylinder for nearly two minutes longer. After the column of mercury had stood motionless, the glass canula was immediately separated from the femoral artery; very dark blood continued to flow from that vessel, the color of the fluid being due undoubtedly to asphyxia; its ebbing (the animal continued to lie in a perfectly horizontal posture) showing that the heart was still working. And this was found to be the case when the chest of the animal was opened. Even after it had ceased to beat, the heart remained irritable to mechanical stimulation.

Many other similar experiments yielded the same results, but it will be unnecessary for us to detail more of them. The details that we have given are sufficient, and the few records briefly described represent the general results obtained in our experiments, results remarkable for their uniformity.

It is but fair to state, however, that in Experiment XV, the heart suddenly ceased to act, while apparently no change whatever could be noticed in the respiration. We thought that death would be the final issue in this case from cardiac failure. The chloroform was removed (the breathing continuing in a regular manner), when in a few seconds the needle in the manometer rose unexpectedly and began to record anew the heart-beats; again these stopped, to reappear after a short interval, and in about three minutes the respiration ceased, and in spite of this the heart continued to act for a few seconds longer, then finally coming to a standstill. How could this phenomenon be interpreted?—a cardiac or a respiratory failure? It was not a true respiratory failure, because even when the circulatory disturbance was marked, the respiration was apparently unaffected; and if the respiratory centers succumbed finally, it may properly be said, perhaps, that they did so on account of a diminished blood-supply and not owing to a direct influence of the chloroform. The result was not a cardiac failure in the proper sense of the term (although it looked more like it), because the heart was able to work after the stoppage of the respiration. The drug in this case acted undoubtedly more as a cardiac than as a respiratory poison. We shall consider this point later.

Another striking action of chloroform closely observed was one that has been noticed by most previous investigators, and is without question, therefore, correctly stated. We refer to the influence exercised by the drug on the pulse and the blood-pressure. It was seen (and an examination of the tabulated experiments reveals the fact) that from the very beginning of chloroformization, even before the respiration was markedly affected, there was a lowering of the arterial pressure, accompanied by a diminution in the rate of the pulse.

The respiration, though at first slightly increased in rate, became gradually depressed and generally and, we may say, practically always stopped before the heart. In not a single experiment did we see distinct cardiac failure preceding the stoppage of the respiratory function, and in only one case surely, and in a second one probably, was there noticed a simultaneous arrest of both the respiration and the action of the heart.

The general and marked results of our investigation lead us to conclude that chloroform given by inhalation and in excessive amounts, other things being equal, destroys life mainly through failure of the respiration. It is true also that during chloroformization there is considerable circulatory depression, and this latter phenomenon may likewise become exceedingly dangerous. While we, therefore, agree in the main with the results of the second Hyderabad Commission and with the similar ones obtained by Hare and Thornton, in that death from chloroform administered by inhalation to the healthy organism is due primarily to a direct action on the respiratory centers, yet we do not believe that during chloroform-anesthesia in the human being, no matter how favorable the circumstances, the respiration alone should be watched. While the disappearance of the radial pulse, for instance, is not an absolute sign that the heart has stopped beating, it is, nevertheless, a very positive indication that the circulation is much depressed. Now, it is possible for this phenomenon to be present—that is, a weakened condition of the circulatory apparatus may be so marked as to render it difficult to detect a radial pulse—and yet the respiration may continue to be apparently normal. Are we, under such

circumstances, and from the fact that the respiration has not yet shown any signs of disturbance, justified in continuing the administration of the chloroform?

Even though experimental evidence has apparently demonstrated that, under chloroformization, there is more danger from respiratory than from cardiac disturbance, it becomes our duty, it seems to us, to remove our patients not only from the main source, but from all possible sources of danger. A weakened circulation brought about by chloroformization is a source of danger, undoubtedly, and it becomes evident, therefore, that that function should not be neglected simply because we have more cause to fear a failure of the respiratory function.

Hare and Thronton state that

"As there is always a fall in pressure under chloroform, it is difficult to feel the radial or temporal pulse, and the respiratory center recognizes the degree of arterial depression which its sister vasomotor center has permitted by finding that its blood-supply is insufficient. As respiration fails first, it should be watched first. Finally, it is only by watching the respiration that we can tell how much chloroform the patient is getting. We do not watch this function for danger alone, but to tell us of the dose."

The same investigators have remarked:

"That the circulatory depression may be dangerous is not only evident, but it is stated to be so by the second Hyderabad Commission itself at the end of paragraph 8. This circulatory depression may be so profound that recovery is impossible, even with the most thorough artificial respiration, a fact stated by the second Hyderabad Commission in paragraph 25.[1] . . . This emphasizes the fact that *we cannot afford to totally ignore the effect of chloroform on the circulation*,[2] and we cannot consider the patient in danger of circulatory failure *only* when the respiration *ceases*, BUT AS SOON AS IT BECOMES ABNORMAL."

We do not entirely agree with the last part of the foregoing statements. We hold that the circulation, independently of respiratory disturbances, may become abnormal also, either through cardiac weakness or vasomotor changes, or both, and, therefore, dangerous; and we further hold that the circulation, in the large majority of cases, *becomes abnormal as soon as it becomes depressed*. In some cases this abnormality is made manifest before there is any disturbance of the respiration. The result obtained in Experiment XV is very significant, and we firmly believe that parallel instances are of more frequent occurrence in the human being, under the full influence of chloroform, than is generally supposed. Therefore, if we are to watch the respiration in every case, as advised by Lawrie, irrespective of the pulse, there is no doubt that we shall continue to increase, instead of diminishing, the death-rate in chloroform-administration.

[1] We have had a similar experience in many of our experiments.

[2] The italics are ours.

Hare and Thornton again remark:

"On the other hand, we should remember that, even if chloroform has been given properly, the arterial pressure may be so low as to give NO pulse in the radial artery, and yet the circulatory system be ready to respond at once when the drug is removed. If, therefore, the chloroform is properly administered, is there danger of its circulatory effect in man?"

—implying apparently by these expressions that, under such circumstances, there is little or no danger from a depressed circulation if "the chloroform is properly administered." But we believe that a depressed circulation, independently of any respiratory disturbances, should put us always on our guard; and for greater reasons should such a depressed circulation, particularly when carried to the extent of causing a disappearance of the radial or temporal pulse, be a sufficient warning for us to remove the anesthetic at once. Because, even granting that more often than not the circulatory system, depressed by chloroform, is ready "to respond at once when the drug is removed," we cannot tell how long we may with absolute safety prolong the administration of the agent after the appearance of the circulatory depression.

As much as we are now convinced that chloroform, administered by inhalation, produces death in the lower animals (for example, dogs) chiefly by primarily arresting the respiration, we are also satisfied from clinical observation and from the results of our experimental research, that *both the circulatory and respiratory functions should be watched at the same time*. We do not, therefore, entirely agree with this statement of Hare and Thornton:

"While watching the respiration will not warn us of a sudden cardiac arrest in fatty heart plus chloroform-depression, neither will the pulse give us such a warning; and we are confident that the statement of the Hyderabad Commission, that the *respiration should be watched*, is correct, for we believe, from a long series of observations, that gradual cardiac failure never occurs without producing respiratory changes from the very first. In other words, we do not believe that in a *healthy* heart chloroform can cause serious disorder without, as a result of beginning disorder, disturbing respiration; and, second, that in a healthy heart a quantity of chloroform sufficient to disorder it will by its direct action disorder the respiration.[1] If, as an extra precaution, one assistant watches the pulse, while the other watches the respiration, very well, for though the respiration is the more important function to watch, the man watching the pulse might discover an irregularity which the anesthetizer may not see reproduced in the respiratory action; but as divided attention generally means a slighting of both objects in view, *Lawrie is right in insisting on the pulse being let alone*."[2]

We are not justified in letting one function alone simply because its disturbance is not as dangerous as that of the other function. It is our duty by all

[1] We do not think this is necessarily the case, especially if we take into consideration constitutional idiosyncrasies, etc.

[2] The italics are ours.

manner of means to enhance the safety of our patient. It is well enough that in experimentation upon the lower animals, one or the other function, or both, be entirely neglected, *in order to determine which one stops first;* but this sort of experimentation cannot be carried on in the human being. Moreover, though experimentation upon the lower animals is the best means we have at our command for arriving at scientific conclusions, when we come to the human being we cannot proceed entirely from analogy—that is, from the results obtained in the laboratory. Again, even admitting that it has been positively demonstrated that death under chloroform occurs mainly from respiratory failure; and, on the other hand, if it be shown, *as it has been shown*, that there is danger in disturbance of both functions, no matter which one of the two is the more easily affected, it is but fair, it is but reasonable, to insist that *both the circulation and the respiration should be watched at the same time*, and not one function alone. Science and practical experience demand the careful employment of this double precaution.

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A PLEA FOR THE EXCISION OF THE INITIAL LESION.[1]

By EDMUND E. KING, M.D. Tor., M D., C.M. Vict., L.R.C.P. Lond., etc.;

surgeon to st. michael's hospital; physician to home for incurables and house of providence; assistant pathologist, toronto general hospital.

Excision of the initial lesion as an *abortive* measure has been practised at irregular intervals since 1693, when M. Corbis, of Lille, first excised the sore, contending that the poison had not yet entered the system. Since that time some surgeons have followed his lead, but many more have opposed the treatment. Each advocate of excision has had an idea of aborting the disease, but no one, so far as I know, has advocated the procedure as a method of treatment to lessen the secondary symptoms. I hope to show that by early excision of the initial lesion the disease may be aborted, and by excision in the later stages the secondary symptoms can be moderated.

I am very sorry to disagree with any opinion expressed by my friend Dr. R. W. Taylor, but I can hardly accept his explanation of the matter as laid down in a very elaborate paper entitled "Why Syphilis is Not Aborted by the Destruction or Excision of the Initial Lesion."[2] In this paper two particular cases are referred to, and conclusions are drawn from the pathologic condition as demonstrated, but we are not justified in assuming that these conditions existed in an earlier stage of the disease. That would have to be actually demonstrated before an argument could be based on their existence. Again, the condition demonstrated must be constant and have some particular relation to the dispute in question. If the identical condition can be demonstrated in other diseases, then no conclusions of a positive nature, attributed to one disease, are justifiable. Dr. Taylor concludes from the microscopic appearance in these two cases—one of a chancre of about four days', and the other of ten days' existence—that it is owing to the rapid infiltration with leukocytes of the peri-vascular spaces and tissues immediately surrounding the bloodvessels. (Figs. 1 and 2.) I quote from his article:

"The point deserving of attention in the first case is the extremely early and far-extending involvement of the bloodvessels; although the primary sore in the first case is but of a few days' duration and very small, and under the microscope is of such limited and circumscribed extent, the bloodvessels are very extensively surrounded by cell-investment, at a considerable distance from the ulcer. The microscope shows *how very deeply rooted syphilis is at the beginning of the sore by having propagated itself along the peri-vascular lymph-spaces, and how futile it is, as experience has already shown, to attempt to stay syphilis by excising the primary sore. Apparently, judging from the appearance of the vessels in this case, their involvement begins before the appearance of the sore.*"[1]

In the foregoing paragraph no consideration is given to inflammatory change, or to the irritating effect from the development of a toxin at the site of the lesion. We know from bacteriologic studies that an infiltration of leukocytes is found in the tissues in about two hours (or less) after an irritating poison has been applied. This infiltration of leukocytes is all that has been demonstrated here. We are asked to look upon these as the poison of syphilis, but we can hardly do that. Some other conditions must be demonstrated, for instance a specific bacillus in this tissue. I have here a section made from a chancroid, removed on the second day after its development, which presents identically the same appearance as that described by Dr. Taylor. (See Fig. 3.) I shall quote one paragraph from his paper that will be an excellent description of my specimen:

"This change in the bloodvessels consists in the distention of the peri-vascular spaces with small, round cells. Nearly every vessel in the section, both artery and vein, is in this way enveloped by masses of small, round cells, forming a sheath, like

[1] Read before the American Association of Genito-urinary Surgeons, at Washington, May 31, 1894.

[2] Medical Record, July 4, 1891.

[1] Italics mine.

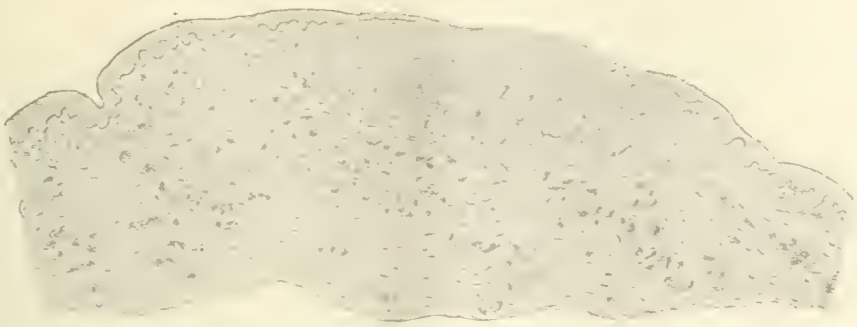
a coat-sleeve around the arm. . . . Besides this condition of the peri-vascular spaces there is a change in the endothelial cells lining the arteries and veins. The endothelial cells are swollen, and seem to be proliferating."

I shall quote one more paragraph from Dr. Taylor's article:

"These studies therefore go to show that in the very first days of syphilitic infection, as shown by the chancre after the first period of incubation, the poison is deeply rooted beneath the initial lesion, and that it extends far beyond it; that it is in a most active state, and running along the course of the vessels it soon affects all the parts beyond, even to the root of the penis. These studies seem to warrant the conclusions that the virus is not localized at the point of entry, and that it does not shut itself in by throwing out a dense wall of circumvallation which, later on, disappears and allows the exudation of the morbid products of the heretofore supposed closed-in morbid focus."

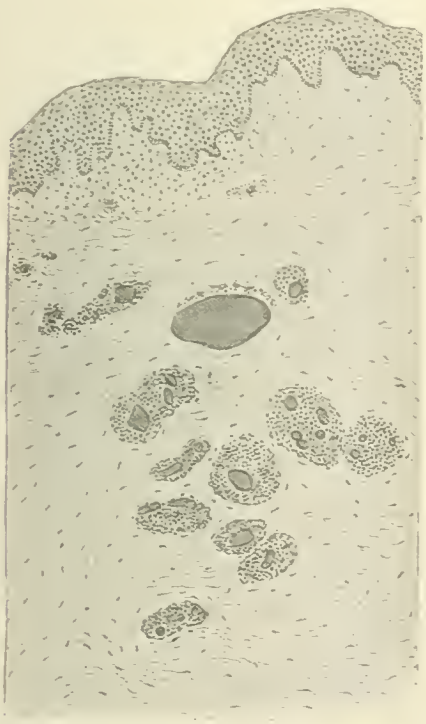
Here again the infiltration is pointed to as the syphilitic poison. From the conditions found in and surrounding the chancres, Dr. Taylor concludes that the poison is not localized in the sore. Certainly not, after a certain amount of the poison has entered the circulation, but this localized sore is a reservoir from which new poison is continuously poured into the system until the induration becomes entirely absorbed. The paper really strengthens the case of those who advise excision at any stage.

FIG. 1.



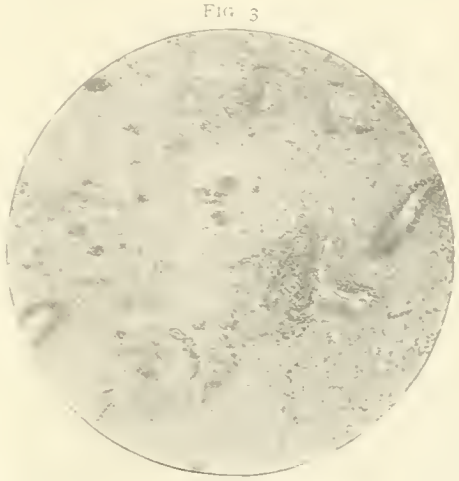
Showing the chancre (at the right upper part) and small vessels, with the coat-sleeve arrangement of the cell-infiltration in the deep connective tissue under and beyond the chancre. (Vessels represented by black dots. [Taken from lithograph illustrating Dr. Taylor's article in the *Medical Record*, July 2, 1891.]

FIG. 2.



Showing coat-sleeve arrangement of the cell-infiltration in the skin, far away from the chancre, which to the eye looks healthy. (Vessels represented by black dots.) [Taken from lithograph illustrating Dr. Taylor's article in the *Medical Record*, July 4, 1891.]

FIG. 3



From a section of chancroid, showing coat-sleeve arrangement around the vessels and general infiltration of the tissue with leukocytes.

Case I.—J. M., twenty-three years old, presented a chancre that developed twenty-two days after intercourse. He was treated by a druggist, who told him the matter was only trivial. The ulcer was very slow in healing. About six weeks after the man noticed the sore, and before it had healed, a rash appeared on his body. When he consulted me the chancre was one inch by one-half inch in size and presented marked induration. The adenitis was excessive and very painful. The rash was general and very profuse. I excised the lesion at once and the wound healed by first intention. The adenitis began to subside within thirty-six hours, and a marked change took place in the rash within seventy-two hours. I now placed the man upon specific treatment; the sequelæ were few and easily controlled. The first improvement I attributed to the removal of the cause of irritation, and the second to the cutting off of the supply of germs.

While the specific microbe of syphilis has not yet been isolated, it is almost beyond doubt that syphilis is caused by a specific germ. Although Lustgarten, Zeissl, Klebs, Doutrelepont, and Schultz, and others have all isolated bacilli, yet none has stood the test of further research, and, therefore, we cannot claim to know their absolute importance as a factor in the causation of the disease. The very long period of incubation of the disease and the peculiarity of soil necessary for the cultivation of the bacillus appear to be the most important difficulties in isolating the organism. In the light of recent researches, however, we are justified in arguing from the standpoint of a specific syphilitic germ.

In all germ-diseases there is a period of incubation of variable length. In a good many the effect of the germs is self-limited, whilst in others it is continuous. In all forms of these diseases it is necessary that the poison shall be administered or planted in a soil suitable for the propagation of the germs. That mild cases of these diseases occur proves either that a smaller dose of the germs was administered or that the soil was not properly suitable for their growth, or that both of these conditions existed together. In all cases we have a period of incubation, a period of exacerbation, and a period of recrudescence.

In the milder exanthemata the organism must grow rapidly, and the return to health is usually rapid. The introduction of the poison into the system is by a different route, we admit, and this illustrates the "one-dose-of-poison" principle. In syphilis this order of things is materially changed, and we observe a longer period of incubation, a greater time again before exacerbation or the manifestation of systemic infection, and a still greater period to exterminate the poison by Nature, if, indeed, that is at all possible—which I doubt. Here we have the germ (?) introduced through a broken surface, developing at the very point of introduction; this I believe to be capable of administering to the system, not *one dose* only, but many continuous doses of the poison.

The intensity of secondary syphilis has been held to be in direct proportion to the extent of the initial lesion. This I have corroborated, and I have further demonstrated, clearly to myself, that it is also in direct proportion to the time that the initial lesion has existed. This, it appears to me, demonstrates that it is in direct proportion to the quantity of germs introduced and the poisonous toxin generated by their growing in the system. I do not look upon the adenitis, as it appears during the continuance of the chancre, as due solely to the syphilitic poison, but to a double cause—the syphilitic germ plus an inflammatory condition due to the toxin; this is shown by the case here related, in which a subsidence occurred immediately on the removal of the sore.

I do not think that it is possible by any known means to abort the disease, once the germs in sufficient quantity have entered the general system; but I believe the course can be greatly modified by limiting the amount of the poison entering the economy. By early and free excision, the fewest possible number of germs are allowed to enter the system. In this way medical (or internal) treatment will have less to control.

Excision has been useful in other diseases in which fatal results follow the introduction of a poison, when neglected. The bite of the cobra has, by excision, been prevented from proving fatal. The excision must be practised early and freely to be successful. The effects of rabies have been prevented by free and early excision. Cauterization does not always produce the desired result. Here we are starting a new inflammation, and unless every germ is destroyed the cauterization is useless. We are producing a very suitable soil for these germs to propagate in. The same may be said of cauterizing the wound after excision, unless it be done with, say, pure carbolic acid, which does not prevent primary union.

We should excise freely and bring the edges together, and expect union by first intention. In these cases I believe that undoubtedly some poison must have entered the system, but not sufficient to be a dangerous dose. We have been shown by Biondi, Senn, Watson Cheyne, Hauser, and others, that there is a minimum dose of microbes necessary to produce systemic effects. Small doses produce no effect, and larger ones produce a greater and more rapid effect. Why not the same with syphilis?

The entire ablation of any localized diseased area is a sound surgical procedure. In these days of antiseptic and aseptic surgery it is the duty of every surgeon to render all diseased areas as nearly as pos-

sible aseptic. When excision is impossible, it is likely that free scraping may be practised and the same result attained. The free and early excision of the chancre changes an infected area into a healthy one, and removes a reservoir of growing germs that would otherwise have to pass through the entire economy. In a very short time after the chancre has cicatrized we observe the inguinal adenitis gradually subside until it attains the characteristic bullet-like hardness, and as the induration melts away this hardness also disappears, until we have left only a slight enlargement as compared with that in the first stage.

I wish it to be distinctly understood that I am not advocating the excision of chancres at all stages as an abortive measure, but as a means of lessening the systemic effects. I say again, if it is possible to see the lesion during the first few hours of its existence and to at once excise it, the disease may be aborted. Even with the ameliorating results, I do not allow my patients to be careless about internal treatment. I tell them that the treatment must be thorough, but I feel justified in assuring them that secondary results will be fewer in number and less severe in character as a consequence of the excision, and I encourage a hope that they may not appear.

I shall now report a case in which I think the disease was aborted.

Case II.—J. McK. consulted me June 18, 1893. He noticed that morning a slight crack on the free border of the prepuce. Fifteen days previously he had had sexual intercourse with a woman of the town. He was under the influence of liquor at the time. On awakening in the morning, he noticed that she had a "skin-disease on her body." He did not give the matter any particular attention, other than careful inspection of the parts. I examined the woman within two hours, and found her suffering from a secondary skin lesion and mucous patches on the vulva. I advised an immediate and free excision of the spot, which he willingly submitted to. The operation was done with antiseptic precautions and the edges of the wound brought together with fine silk. The wound healed by first intention. No hardness developed in the cicatrix, nor have any symptoms presented themselves up to April, 1894, when I last examined the man.

This case, it appears to me, furnishes as clear evidence of a disease aborted as any that has been published; yet the evidence is in some respects unsatisfactory. At the present time it is absolutely impossible to make a differential diagnosis by the microscope between a chancre and a chancroid. This case may go a long way in determining the course we should pursue in the treatment of the lesion, yet it offers no positive proof that it was syphilitic in character, although the presumptive evidence is very strong.

In six other cases the history is much the same. The wounds healed by first intention in five of them. In the sixth the wound cicatrized after some delay, as the sore had involved the border of the glans, and I did not thoroughly remove the whole of the infected area. The sores had existed for from four to fourteen days. The rash appeared very mildly in all of the cases in from forty to fifty-five days from the appearance of the chancre—four entirely escaped any other symptoms. Two had only very slight and easily-controlled mucous patches on the tonsils, but both of these patients had been inveterate smokers and had continued the habit. At least two years have elapsed since the last of this series of chancres was excised, and during the past eighteen months no secondary symptoms have developed in any of the cases.

In considering the subject of excision of the initial lesion it would be of great advantage if an answer could be made to the question, When is the system infected?

First. Is it immediately on inoculation?

Second. Is it during the incubation-period, *i. e.*, prior to the development of the lesion?

Third. Is it subsequent to the development of the lesion?

The first of these—Is it immediately on inoculation?—would, of necessity, open a purely theoretic argument for which at the present I have not the time. I do not believe that it is. All germs require time and a suitable medium for their successful development, the germ of syphilis requiring from seventeen to sixty days—a rather wide range. I know of no means whereby we can detect the slightest evidence of systemic infection immediately after the most suspicious intercourse. Nor on the closest scrutiny of many observed cases can the slightest abrasion be discovered.

In reference to the second—Is it during the incubation-period, prior to the development of the initial lesion?—again, I believe not. That period of time only has elapsed in which the germ has been able to reproduce itself in sufficient numbers to become manifest, and that at the very seat of inoculation. We have seen that a minimum number of germs are necessary to produce any result. I believe that that number only is attained when the lesion first appears. From this time the increase is fairly rapid. If it were possible to at once excise this spot I believe the system would not be infected, because sufficient of the germs have not been carried into the general system. It cannot surely be argued that the poison had entered the system, been carried throughout the whole economy and back to the very point of entrance to show itself there and there only. If the system was poisoned before the initial lesion developed, why do not lesions develop on any

sore or abraded spots that might have existed on the body during this time? If the system was infected prior to the appearance of the sore, why does it take on an average forty-two days longer for the roseola to show itself? Adenitis cannot be discovered before the appearance of the lesion, nor for some shorter or longer time after its appearance.

In reference to the third question—Is it subsequent to the development of the initial lesion?—I answer yes to this. Immediately the germ has developed sufficiently to produce the lesion, the irritation commences and the lymphatics at once take up the germ or its resulting toxin. The system is now infected, but with the very smallest quantity of poison. This is rapidly augmented and the poisoning becomes more severe. If now the sore is freely excised, possibly not enough poison has entered to produce a systemic effect, but this time must be counted by hours, not days.

The most important and most interesting question from a clinical standpoint now presents itself: Does the number of germs that enter the system in any way affect the subsequent course of the disease? If we can demonstrate this point, we have accomplished a great deal for the syphilitic sufferer. It does not sound irrational to say that a little poisonous material introduced into a suitable medium should take a longer period to contaminate the whole system than would a greater quantity. Nor does it seem to me to be irrational to say that a mild attack of any disease should be more easily controlled than a severe one. The syphilitic germ, like all others, propagates itself in proportion to existing numbers, *i. e.*, after the incubation-period has been passed there are thousands where tens existed before. Therefore we should take away any source of an increasing supply and allow the smallest number of germs to propagate themselves in the system. Nature tries to surround this infected area with leukocytes to devour the irritating and poison-producing germs; but they will not be devoured. She stands by at the glands to arrest them, but without success. Even mucous patches that occur in the mouth and on the tonsils are treated locally as much to prevent systemic reinfection as to remove the unpleasantness caused by their presence. I have endeavored to show that fewer secondary manifestations appear in those from whom the chancre has been excised than in the ordinary case in which excision has not been performed, and if this is the case, then excision is not only justifiable, but advantageous.

I have tried to base my remarks as much as possible on clinical cases, and have not attempted to quote authorities, with whom quite possibly you are more familiar than I am. I advocate the free excision of the sore; that the wound be not cauterized, except possibly with pure carbolic acid, and that the edges be united; that the operation be done with the strictest antiseptic precautions, including the after-dressing.

I would draw the following conclusions:

First, that the early excision of chancres—that is, within a few hours after their appearance—will abort the disease.

Second, that the excision of any unhealed chancre will moderate the subsequent secondary manifestations.

Third, that excision constitutes the cleanest, least painful, and most scientific method of treating the lesion.

Toronto: 61 Queen Street, East.

A UNIQUE FORM OF MOTOR PARALYSIS DUE TO COLD.

By EZRA CLARK RICH, M.D.,
of Ogden City, Utah.

I wish to call attention to a family peculiarity existing in a number of my own relatives. At the present time there are living in the southern part of the State of Idaho fourteen individuals whose nervous system is peculiarly susceptible to the influence of cold. I recognize the fact that cold is a very important factor in the production of certain forms of neuritis which may result in paralysis; but paralysis without a neuritis or inflammation of any of the tissues of the body, is, I believe, a rare condition. I suppose the nervous system of almost all individuals is more or less depressed by the effects of cold, and in some it may result in slight paralysis, as of one or more fingers. Paralysis of entire groups of muscles, however, as the whole of both upper or lower extremities, without the symptoms and results of inflammation, is perhaps only found in those possessing the peculiarity which I wish here to describe.

In fourteen persons now living with whom I am well acquainted, as it was also in three who are dead, the condition is the same under similar circumstances. When brought in contact with a cold, damp atmosphere, the muscles most exposed soon become fixed and immovable, the paralysis being due to tonic spasm. The parts exposed may be fixed either in extension or in flexion. The muscles of the face are most frequently affected. The accompanying photograph, Fig. 1, shows fixation of the facial muscles; Fig. 2 shows the same individual as she is normally. The attitude may differ from this; one eye may be open and the other closed. One side of the face may be drawn up and the other be straight, or the face may be paralyzed in the act of laughing, crying, whistling, etc. I have seen one of these individuals affected while laughing and the facial muscles remain in the

attitude of laughter for twenty minutes or more, and then be only relieved by getting into a warm room. The arms are quite often affected, and come next in frequency to the face. The muscles of the fingers and forearm are generally, if not always, affected first, as a result most likely of their being most exposed. Both arms may be paralyzed at the same time, or one arm, one hand, or one finger may be

Fig. 1.

Fig. 2.

affected, and the rest of the body normal. The same is true of the lower extremities; the muscles of one or both thighs may be attacked, and the legs be normal, or one or both legs may be affected, and the thighs and rest of the body be normal. All the groups of muscles mentioned may be affected at the same time, making it impossible to move even a finger or a toe, much less an arm or a leg.

It may not be out of place here to relate a circumstance occurring in the history of one of these individuals. After dancing for several hours and becoming tired, her underclothing becoming saturated with perspiration, she retired for the night with a sister who was not affected with this peculiarity. The room was damp and there was light covering on the bed. The girl did not remove her damp underclothing, and was soon completely paralyzed, with the exception of her tongue, which on account of the warmth of the mouth escaped. While in this condition she relates that she was unable to move any part of her body except her tongue, by which she made her condition known. Respiration was not materially interfered with. The intellect was clear, and conversation could be carried on as well as other times, except that the lips were paralyzed. Sensation was not impaired, and she suffered no pain. Recovery was brought about by the application of heat, and in five or six hours she had completely recovered, without any ill effects from the previous condition. Severe forms of this paralysis, as under the circumstances just related, are not at all common; but fixation of certain groups of the muscles of the face, arms, or legs, is very frequently seen during cold, damp weather. I have repeatedly seen different individuals of this family with their upper or lower extremities in a fixed condition from cold, and no more able to move the affected part than a chronic invalid who has been paralyzed foi years. The tongue is very easily affected by taking snow or ice in the mouth. When any amount of this is swallowed, the muscles of deglutition are affected and swallowing becomes impossible.

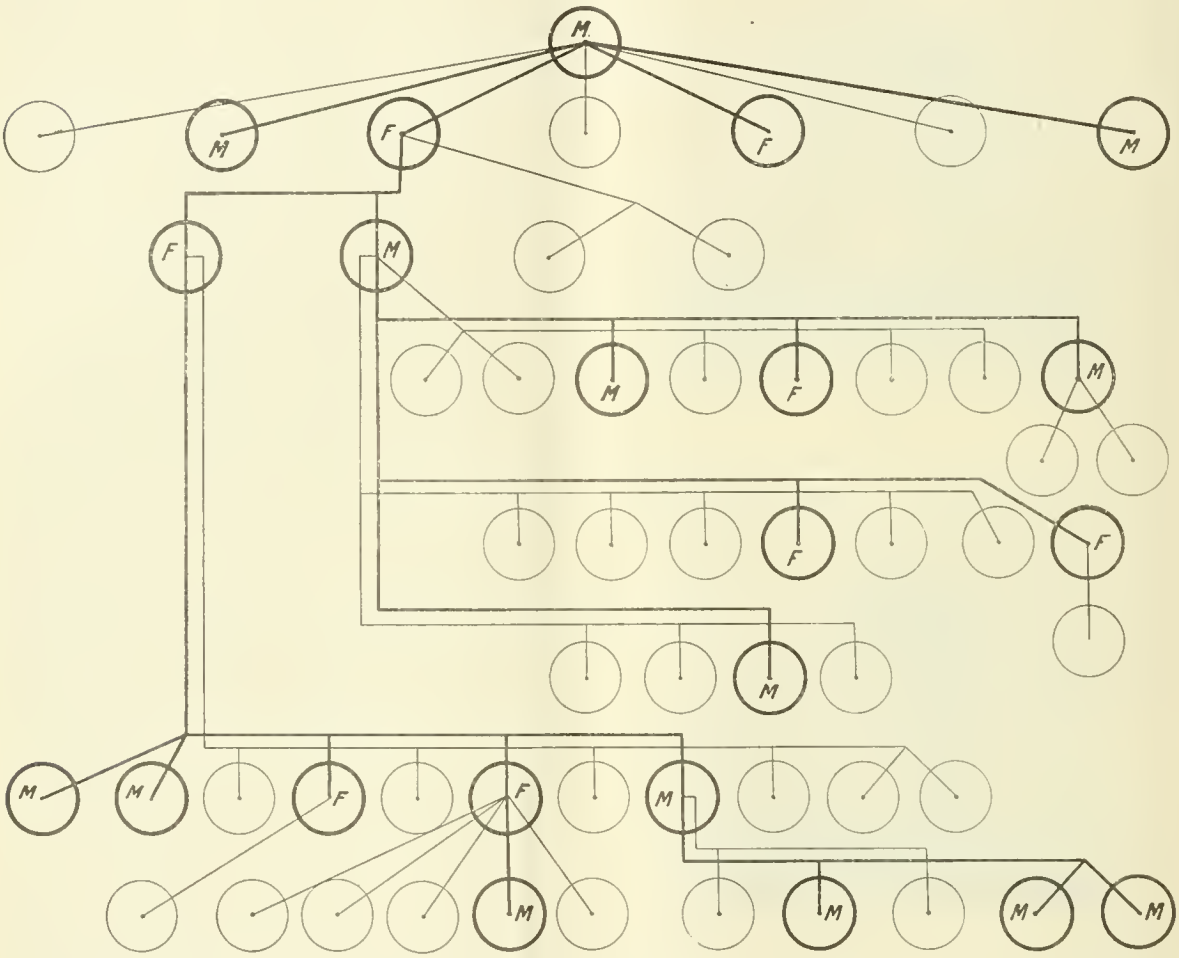
The affection seems to be only a motor disorder, the sensory nerves not being involved. Dr. E. I. Rich has carefully tested the sensation of the paralyzed parts, and finds it not in any way impaired. When the tongue is affected the sense of taste is as acute as at other times. At the onset of the paralysis there are no symptoms in the parts affected, except what the subjects describe as a "drawing sensation," especially felt in the anterior part of the thighs and the calves of the legs when the lower extremities are affected. A peculiar symptom occurring with the paralysis is an intense desire to urinate, which is almost a constant symptom. The bladder can be evacuated at this time without trouble, and the desire is not repeated. Paralysis of the sphincter muscles of the bladder and rectum, with uncontrollable evacuation of the contents of the bowel and bladder, has never happened as far as I have been able to ascertain, and I have made careful and especial inquiry regarding this matter.

Recovery from this condition is always complete, and is brought about by the application of heat, either as warm air or as the warm bath. There is no pain either accompanying the fixation of the muscles or during the recovery. In the slight forms

of the affection, as seen in Fig. 1, recovery would take place in about half an hour. When the tongue is fixed recovery is complete in a few moments; but in the severe forms five or six hours, under favorable circumstances, will elapse before the parts have recovered their strength. The return of strength is gradual; the affected part is slightly swollen or edematous and very weak and limp, but not tender to the touch. When the tongue is affected it is very much increased in size, almost entirely filling the mouth. The marked edema of this organ is probably due to its great vascularity.

the vitality of the system, as present or previous disease, exhaustion from overwork, or want of food, etc., predisposes the individual to the affection. Muscles in active motion are not affected. In walking, the arms and face may become paralyzed, while the legs would not be affected as long as they were kept in motion. If however, they were tired and the individual should sit down for five or ten minutes his legs would almost surely stiffen. I do not wish to convey the idea that these people are paralyzed every time they come in contact with cold air; on the contrary, they are sometimes able

FIG. 3.



After recovery from the severe forms of paralysis the system seems exhausted for a few hours. The feeling is described by the patients as one of "goneness"; nausea is very common, but vomiting rarely occurs. There are no sequelæ, notwithstanding the number of times these people are affected every year; there have never been any bad after-effects. The condition seems evidently one, as already stated, of motor paralysis without inflammation or its consequent results. Any condition that would lower

to stand a great deal of cold weather without being affected by it, and on the other hand they are frequently affected in the summer during damp, cold, weather. Their susceptibility seems to depend entirely upon the amount of resistance which the body has to offer.

One of the most interesting features of this condition is its distinct heredity. I am able to trace the condition into the fifth generation (See Fig. 3.) I start with T. B. C., born in Milford, Connecticut,

in the year 1773. He was one of quite a large family, two or three of whom besides himself had this peculiarity. He had a family of seven children, of whom two sons and two daughters inherited this affection. Of three of the four I am not able to give any history at the present time. The other child, one of the daughters, married and had four children, three daughters and one son. The son and one daughter inherited the peculiarity. The writer's mother was one of the daughters who did not inherit the affection. The affected male of this family was married three times. By the first wife he had eight children. Of these two sons and one daughter were affected, and one of these three, when a boy of two and a half years old, died of diphtheria. The other son is now married and has two children not affected. By the second wife he had seven children. Two daughters have the peculiarity; one of these is married and has one child not affected. By the third wife he had four children, one son having the affection. This makes nineteen children in all, six of whom inherited the peculiar form of paralysis. I now return to the daughter in the family of four. She married and had eleven children, and of them three sons and two daughters have the affection. One of the sons is married and has a family of five children, three sons being affected. The daughters are married; one has a family of five children, one son inheriting the peculiarity. The other daughter has one child not affected. This makes a total of fourteen now living (nine males and five females) and eight who are dead who have inherited this peculiar form of paralysis. I am told that there are some members of this same family living in Connecticut who have this affection, but I have not been able to get their address.

I believe the foregoing history of this curious form of motor paralysis establishes its heredity beyond a doubt. The peculiarity never skips one generation and appears in the next. The family is aware of that fact, and knows that when a child does not inherit the affection it is ended as far as his offspring are concerned. The history of the family seems to prove this statement. I have never seen anyone outside of this family having this peculiarity, and in searching for literature on the subject have not been able to find anything similar. The only affection which at all resembles the condition described is Thomsen's disease. Like the latter, it is distinctly hereditary; but it differs from this in that it is always brought on distinctly by exposure to cold, and lastly, while in Thomsen's disease voluntary movements bring on the spasm, in the affection here described voluntary movement absolutely prevents the attack.

I have known and associated with these people all my life. I have seen different ones affected numbers of times. Their condition is well known to the general public living in the section of country with them. They speak of their condition as "numbness" or "getting numb." Living as they do, in a climate where the ground is covered with snow for three or four months in the year, and where a temperature of 20° or 30° below zero is not very uncommon in winter, it can be readily understood that they know the necessity of taking care of themselves, and that exposure under certain circumstances in which other people would not be in danger would be simply suicidal on their part. There is no other peculiarity in this family that I am aware of. They are not of a highly nervous temperament; they are nearly all engaged in farming and stock-raising, this causing them to lead out-door lives. There has never been a case of hysteria, mania, locomotor ataxia, infantile paralysis, multiple neuritis, or any of the allied diseases in the family. One of the fourteen, a very strong, healthy woman now, had chorea when a child. The disease yielded readily to treatment, and has not appeared since. It seems hardly necessary to say that they are not suffering with any form of specific disease or that they are not alcoholics.

As to the nature of this affection, I believe there is little to be said. At present there has been no histologic investigation made of their nervous or muscular tissues. The absence of pain and the fact that sensation is not at any time impaired seems to eliminate the sensory side of the nervous system from being implicated. Still it may be possible that the peculiarity exists in the muscular fibers, and that the spasm is the effect of reflex action. It is more probable, however, that the affection is one of the end-plates of the peripheral motor nerves, and that the cold has its peculiar influence on this part of the nervous system. The edema of the part seems to indicate that the vasomotor nerves supplying the walls of the vessels of the part affected are implicated, allowing the serum of the blood to pass out into the surrounding tissues.

CLINICAL LECTURES.

POSTERIOR SCLEROSIS AND DILATATION OF THE STOMACH IN THE SAME PATIENT.

By J. M. ANDERS, M.D., Ph.D.,
PROFESSOR OF MEDICINE IN THE MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA.

[Reported by A. M. Davis, M. D.]

A. J., a brushmaker, fifty-six years old, gives a negative family and personal history. Five years ago, having taken two meals at one sitting and thus gorged himself with food, the man was seized with sharp, lancinating pains in the epigastrium, extending to the back below the level of the angle of the scapula, and accompanied by nausea and vomiting; the vomitus being thin and watery, mixed

with mucus, and containing particles of undigested food; it was light in color when first ejected, but became dark on standing. Medicinal treatment at that time failed to relieve the symptoms to any marked degree. The attacks were followed by intermissions, recurring usually at intervals varying from a few days to several weeks, and persisted for the same length of time. Later paroxysms were unattended with pain, but were accompanied by a sensation of constriction or pressure across the epigastrium, with nausea and vomiting. Just prior to admission sharp, shooting pains referred to the lower extremities were complained of at the time of the attacks, which still persist. Loss of flesh and strength has been steadily progressive, the bodily weight being fifty pounds less than before the onset of the disease.

On admission to the hospital (two weeks ago) the bowels were constipated, the skin harsh and dry, the urine diminished in quantity and high-colored. Vomiting has occurred daily, the amount being large (sometimes exceeding a basinful), and consisting of a watery, mucoid liquid, with a very sour, foul odor. Repeated physical examinations showed unmistakable signs of dilatation of the stomach. On inspection the fundus was invisible, the peristaltic wave being absent. Palpation elicited rumbling noises from the presence of flatus, but no splashing was detected. Percussion yielded a hollow, low-toned tympany, which extended fully two inches below the umbilicus, reaching below a transverse line drawn from one anterior superior iliac spine to the other. On distending the stomach with carbon-dioxid gas (by administering separately one-half dram each of sodium bicarbonate and tartaric acid in solution) sizzling or hissing sounds were heard below the umbilicus (as from a siphon charged with soda-water); and on having the patient swallow a small quantity of water, rushing sounds were plainly audible. To demonstrate more clearly the presence of dilatation, an esophageal bougie was passed for a distance of 63 cm., the end being palpable through the abdominal wall below the navel. In a viscus of normal capacity the length of the inserted tube should never exceed 60 cm. Chemic examination showed a total absence of HCl in the filtered gastric contents, with an excess of organic acids (lactic, butyric) and fermentation-products.

The pupils are small and unequal, myosis being the more marked on the left side. They are unaffected by light, but respond readily in accommodation, thus constituting the Argyll-Robertson sign of posterior sclerosis. There is no diminution, however, in the field of vision, and ophthalmoscopic examination fails to reveal evidences of optic atrophy. Slight temporary ptosis is apparent on the left side, but no strabismus. Examination of the lower limbs shows almost total absence of the patellar reflexes, and on having the patient stand erect, with his heels in contact and his eyes closed, an uncertain swaying or rocking motion is observed, showing some loss of coördination. His gait is characteristic, the legs being held widely separated, the left foot being thrown out forcibly, and the heels striking the ground first in their descent. Some loss of muscular sense is apparent, *i. e.*, the patient does not know how much power is required to walk.

The etiologic factors in the case are of the utmost importance. Ferrier believes tabes dorsalis to be due in every instance to syphilis, either recent or remote. Male sex, middle life, chronic alcoholism, prolonged physical labor, and repeated exposure to cold and wet are among the predisposing causes. In this patient, after considerable difficulty, we have recently obtained a clear history of specific infection of twenty years' standing.

In other well-attested cases, typical symptoms of posterior sclerosis have followed ergotism and poisoning by carbon disulphid, lead, arsenic, and other mineral poisons. It may also follow spinal injuries, or develop during the course of wasting diseases. The gastric dilatation present had for its exciting cause over-distention produced by gormandizing, though there had probably existed a predisposition in this instance.

During the course and progress of tabes dorsalis, three stages or groups of symptoms present themselves—the *preataxic*, the *ataxic*, and the *paralytic* stage, the symptoms present in this case characterizing the first or preataxic stage. Pain, which is the most marked symptom, often persists throughout the course of the disease, or it may end with the onset of ataxic symptoms; it is of a shooting or electric type, often being referred to the lower dorsal region. Later the lower limbs become affected. In this instance the patient suffered severely with attacks of pain in the lower extremities, which he attributed to rheumatism or neuralgia. Intense pain may also be complained of in the rectum, bladder, and stomach, together with band-like sensations (as of a tight belt) about the waist.

Sensation is disturbed early; there may occur feelings of formication in the hands and feet, accompanied by profuse sweating. Areas of paresthesia and anesthesia often develop, appearing first upon the thighs and perineum, and later involving the remainder of the lower, and finally also the upper extremities. Polyesthesia when present is highly characteristic, one prick of a pin giving rise to several painful impressions. Later in the course of the disease, anesthesia of the muscles, tendons and fascia is present. The deep reflexes are usually early affected, although if the lesion be limited to the dorsal cord, and the lumbar enlargement be not involved, well-marked cases may exist without any diminution of the knee-jerks; on the other hand, the patellar reflex is often absent in health and in many cases of neurasthenia.

Vasomotor and trophic disturbances not uncommonly occur during the pre-ataxic stage; sweatings (localized and general), edema of the extremities accompanied by herpetic eruptions, and in some instances alopecia and shedding of the nails, occur. A peculiar enlargement of the joints, unaccompanied by inflammatory symptoms, is highly characteristic. To this condition has been given the name of "Charcot's joint." When occurring in the knee, serum may be present in the synovial sac and float up the patella, but the fluid finally becomes absorbed. Partial ankyloses may result from absorption of the ends of long bones, lateral motion and crackling sounds being elicited on manipulation; the knee-joints are thus commonly affected.

If the sclerotic process affects the anterior cornua, paralyses result; peripheral neuritis with muscular atrophy and degeneration occurring only when other structures are involved. In this case there is much emaciation, but entire absence of joint-involvement or of symptoms pointing to motor palsy.

Ocular phenomena are equally important, the Argyll-Robertson pupil, with some ptosis, being present in this case. In some instances rapid diminution in the field of vision appears early, with color-blindness, followed by the gradual development of optic atrophy. Sometimes hearing is interfered with, and the senses of taste and smell may be perverted or blunted. Aberrant sensations are not uncommon; thus, in walking, the patient often feels as though the soles of his feet were treading on feathers, cotton-wool, or fur, a symptom that is, however, not present in this case.

The foregoing group of symptoms may almost disappear at the end of the first stage, or may persist throughout the course of the disease. The ataxic period is characterized by the peculiar gait which, when well developed, is pathognomonic of tabes. As the case advances, the peculiarity becomes more and more pronounced. To assist coördination the eyes are kept on the feet when walking; later, a cane has to be employed, and as the paralytic stage is reached the patient uses crutches or is obliged to resort to a wheeling-chair. During the second stage visceral crises are more common, and may affect the larynx, stomach, or kidneys. When occurring in the larynx, severe attacks of cough, with dyspnea and dysphagia develop. Pain and laryngeal spasm may be intense, and attacks of true angina are not uncommon. The gastric crises are characterized by intense pain after partaking of food, with violent vomiting and purging; these are present in this case. The vomited matter is small in amount, intensely acid, and has been termed by the patient "pepper vomit," in contradistinction to that due to the dilatation, which occurs in large amounts at one sitting. It is a true ataxic vomit of nervous origin. Renal crises much resemble in symptomatology attacks of renal colic. In the former, however, blood and pus never appear in the urine, and this fact, together with the occurrence of other visceral crises, the Argyll-Robertson pupil and abolition of the reflexes, tends to establish the diagnosis. When, finally, the paralytic stage develops, the patient becomes bed-ridden, and may remain many years in this deplorable state, unless carried off by some intercurrent disease.

In the beginning or *pre-ataxic* period of this disease a positive diagnosis is rarely justifiable unless ocular symptoms are present, and, when existing, the previous history of the case should always be taken into consideration. The presence or absence of patellar reflexes is of little consideration; for, as already stated, they may be abolished in a case of neurasthenia, or they may even be absent during health. If, however, lightning-like pains in the extremities are present, with an absence of the reflexes, the presence of the dread disease may be suspected.

Certain conditions may simulate locomotor ataxia. Thus, in *diabetes mellitus* there may be pain and tenderness over certain nerve-trunks with paralysis of the extensors (especially of the legs) and absence of the patellar reflexes. In this disease, however, we have a different history, with the existence of glycosuria; ocular symptoms are absent and the gait is not ataxic in character. *Alcoholic ataxia* often resembles that of posterior sclerosis, but there is a distinct history of alcoholism, together with the presence of the coarse tremor increased on voluntary effort, with an absence of eye-symptoms, and usually rapid improvement following treatment. *Peripheral neuritis* is associated with a peculiar 'steppage' gait; the extensors of the legs being paralyzed, the feet are lifted high, to clear the toes of the floor, the plantar surfaces being brought down flat. The gait of *cerebellar ataxia* is sometimes difficult to discriminate from that of posterior sclerosis; but in the first-named condition the knee-jerks are retained; there is usually great pain at the base of the brain, with persistent vertigo and vomiting, unaccompanied by nausea. Optic atrophy or "choked disc" also develops often early in the course of this affection. In *diphtheric paralysis* the gait is sometimes much like that of true ataxia; the different history and the paresis of the throat-muscles would aid, however, in making a differental diagnosis.

The prognosis of locomotor ataxia is decidedly unfavorable as to recovery. Many cases, having reached the paralytic stage, persist for twenty-five years. Often uncertain symptoms of the pre-ataxic stage last ten years before the development of ataxia. Only when the history of syphilis is recent can the prognosis be said to be at all favorable, and even then apparent cure is often followed by a relapse, with a fatal termination. From some unknown cause, cold weather seems to be unfavorable to this disease, whereas temporary improvement often occurs during the summer months.

In the patient before us the two conditions present demand separate and specific methods of treatment. On admission, lavage was promptly resorted to, the stomach being irrigated twice daily with a 3 per cent. solution of boric acid. In performing lavage in the treatment of dilatation of the stomach it is often necessary to employ a larger tube than that of ordinary caliber, because of the lodgment in and obstruction of a smaller tube by undigested particles. At the present time irrigation has been discontinued, and the patient is taking four times daily a pill composed of silver nitrate and extract of hyoscyamus, each gr. ¼. The use of the former drug may be safely continued until upward of two hundred grains have been taken. Anti-syphilitic treatment should also be begun early and persisted in. Mercurial inunctions may be employed continuously for a period of two months, together with small doses of potassium iodid (from 5 to 10 grains) three times daily for the same length of time. These may then be discontinued for one month, and be again repeated for the same period. The use of certain drugs has been shown to have an injurious effect upon posterior sclerosis; among these may be mentioned belladonna and ergot, ergotism frequently giving rise to symptoms resembling those of locomotor ataxia.

For the severe dorsal pain present, cupping along the spine often gives great relief. Many authorities claim great benefit in the treatment of this disease by the use of electricity, the faradic brush, or the constant current being applied along the spinal column.

The suspension-treatment, formerly much advocated, often does harm, and has fallen into disuse. It should never be employed when marked prostration or organic heart-disease exists.

In conclusion, it is interesting to consider whether or not the two conditions coexisting in this patient—*i. e.*, gastric dilatation and posterior sclerosis—bear any rela-

tion to one another, and, if so, how that relation is brought about. Though the matter cannot be positively determined, it is probable that locomotor ataxia was here the primary disease, and this may have served as a predisposing factor to gastric dilatation. So far as my knowledge extends this has not been mentioned by any authority as a cause of dilatation of the stomach; neither have I met with any records of cases in which the two diseases under consideration appeared together. Furthermore, it is not improbable that the tendency to gastric dilatation in this case was dependent to a greater or lesser degree upon degenerative processes in the peripheral nerve-supply of the stomach. It is well known that the sclerotic changes may extend from the posterior to the anterior cornua, an explanation being thus afforded for the paretic symptoms present in these cases.

GONORRHEA IN THE FEMALE; CYST OF THE BROAD LIGAMENT.

Delivered at the Buffalo General Hospital.

By MATTHEW D MANN, A.M., M.D.,
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GONORRHEA IN THE FEMALE.

This patient was brought into the hospital a few days ago. Upon examination it was found that she had gonorrhea. On attempting to pull down the cervix with a tenaculum the tissues tore through like wet paper. I at once thought of pregnancy, and on inquiry learned that the patient had not menstruated for some months. The color of the cervix was also suspicious. There were a number of venereal warts which I tried to remove, but could not, as the attempt caused considerable pain. I have, therefore, had her anesthetized in order to remove them, and also to make a more thorough examination in your presence. The abdomen presents no striæ; the hymen is nearly intact; the cervix is not lacerated; so it is evident that the patient has not borne children. The vagina has not the pink color of the healthy non-pregnant state, but is more or less blue, and you will note the characteristic purple of the anterior wall. The cervix is soft and velvety, and by bimanual palpation I can find something between my hands, and now I get *ballottement* as typically as I have ever felt it.

It is an interesting point, and one of importance so far as prognosis and treatment are concerned, to know whether the pregnancy antedated the gonorrhea, or *vice versâ*. It is very doubtful if gonorrheal pus can invade the pregnant uterus by gaining access between the membranes; and, if gonorrhea reaches the endometrium and tubal epithelium, pregnancy is not likely to occur. Venereal warts are more prone to develop and to grow rapidly during pregnancy. Gonorrhea does not affect the vagina materially; in fact, some claim that gonorrheal colpitis has no existence. You can see in this case that the warts grow from the vulva, and scarcely at all from the vagina. By nipping off the warts and cauterizing their bases, this manifestation of the disease can easily be removed, and in two or three days we shall make applications of silver nitrate to the vagina, taking advantage of the occlusion of the uterine cavity by the fetal membranes to eradicate the disease.

I have seen several cases of puerperal fever that were undoubtedly due to gonorrheal infection extending from the cervix. Tait says that for every thousand fatal cases of syphilis in women there are tens of thousands of fatal cases of gonorrhea. It would certainly take hundreds of ordinary cases of syphilis to cause the same amount of agony that is produced in one case of gonorrheal pyosalpinx. Syphilis in the male is a curable disease, and in women it is rather likely to run a mild course. It is not once a year that I meet with a case of syphilis in my private practice. Gonorrhea, on the other hand, enters into about half the cases of pelvic disease that I see. Just at present I have under my care a young, healthy-looking girl, married a month ago to a man of the world. She was suddenly attacked with pelvic inflammation without any good reason, although there is a story about her catching cold while menstruating, the window being open at night. I have found a salpingitis of the right side, and a green, peculiar-appearing discharge from the cervix. I have no doubt but that the man has had a gonorrhea, and that he has infected the girl.

Our attention was first forcibly called to the matter of gonorrhea in women by Dr. Noeggerath, of New York, who in 1876 read a paper on the relation between gonorrhea and pelvic disease. His statements were laughed at at the time, and, indeed, he has modified them since; but his views were largely correct. He went so far as to claim that no man ever recovered from gonorrhea, and, therefore, that no man who had once had gonorrhea could ever have children. After Noeggerath's paper was published several physicians corroborated his statements, to a greater or less degree, but it was not until Tait showed by the results of his abdominal sections that pyosalpinx, pelvic peritonitis, and a multitude of complications are due to gonorrhea, that the truth which lay in Noeggerath's statements was accepted. It certainly is too sweeping a statement to say that gonorrhea is never recovered from. I remember being on a hunting excursion once with a young man whose woes were testified to by the numerous rags which fluttered on the bushes at each camping place; yet he has since married and had children, and his wife is a perfectly healthy woman.

CYST OF THE BROAD LIGAMENT.

This specimen is a cyst of the broad ligament, which I removed some days ago. It is known to be a cyst of the broad ligament for several reasons: 1. The ovary is found intact and separate from the cyst, as you see. The fimbriated extremity of the Fallopian tube is found in the middle of the sac. 2. The fluid contained in the cyst is clear, and not thick and cloudy like the typical contents of an ovarian cyst. 3. Finally, the proof positive that we have a cyst of the broad ligament is that the whole tumor is covered with peritoneum. It is sometimes possible to enucleate such a tumor without leaving any pedicle at all, but usually there are numerous bands of adhesion, the remains of inflammatory processes, which make the removal of the cyst a matter of difficulty.

This other specimen, curiously enough, seems also to be of the nature of a broad-ligament cyst. The whole pelvis was filled with a mass which was more or less

cystic, and by vaginal examination a number of little soft cysts could be felt behind and at the sides of the uterus. On opening the abdomen and getting my hand into the pelvis, I found an immense mass of adhesions, the tumor being bound down behind the broad ligament as usual. I could break up the adhesions, however, by reaching down behind the mass and raising the hand so as to imitate the action of a paper-cutter. This is the the usual manenver. This appendage I take to be the ovary, and as it can be separated from the wall of the cyst, the cyst must be intra ligamentary. The sacs are filled with clear fluid. The Fallopian tube of the opposite side was also distended with fluid, and was removed with some difficulty, as it was so low in the pelvis. The ovary was so firmly adherent that I could not get it out. We had to deal, then, with a hydrosalpinx of one side, and a cystic degeneration of a number of follicles of the body of Rosenmüller on the other side.

CLINICAL MEMORANDUM.

SUPPURATIVE METRITIS; ULCERATIVE ENDOMETRITIS AND METRITIS; DOUBLE PYOSALPINX AND AN OVARIAN ABSCESS; EMBOLIC PNEUMONIA FOLLOWING LABOR: HYSTERECTOMY; RECOVERY.

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THE patient whose case is herewith reported was admitted to the Philadelphia Hospital a month after her delivery. She gave a history of having been ill and feverish since the childbirth. She had been taken from a squalid hovel, where she had received no care. At first glance it seemed apparent that she had not long to live. The temperature was high, the pulse rapid and feeble, the respirations hurried and shallow, the abdomen tympanitic and exquisitely sensitive, and there was profound prostration. On vaginal examination the uterus was found large, boggy, firmly fixed, with sensitive masses behind and on each side. Over a considerable area of

FIG. 1.

Anterior view: Perforation at fundus; abscess opened, to the left; abscess unopened, to the right; double pyosalpinx.

the right lung, especially toward the apex, there was diminished resonance, together with numerous fine râles. The abdomen was opened as soon as practicable. At the fundus of the womb a perforation was made into the cavity by pressing lightly upon it with the finger-tip. The ulcerative process had destroyed the muscular wall to the peritoneal covering. On both sides of the uterus, about an inch below the insertion of the tubes, were large abscesses in the uterine wall. Both tubes were distended with pus, and there was a large ovarian abscess

FIG. 2.

Posterior view: Large ovarian abscess.

on one side. The broad ligaments were much thickened, being quite an inch thick at their base. On this account the removal of the womb and the control of the hemorrhage was extremely difficult. The patient reacted well after the operation, and made a good recovery, although her convalescence was somewhat delayed by an abdominal fistula that finally, however, closed spontaneously.

It would be scarcely possible to find a more unfavorable case of puerperal sepsis for radical operative treatment. The successful issue is encouraging as an evidence that one need not necessarily despair, even in advanced cases and in involvement of important structures, necessitating the removal of all the genitalia above the vagina or above the cervix. A cure, however, by surgical treatment, especially if hysterectomy is required, is and must remain exceptional. The recent literature upon this subject, unless carefully studied in the light of personal experience, is misleading. Hysterectomy has been done successfully for puerperal sepsis when it was not at all necessary. I saw last winter two perfectly healthy wombs removed for fever after childbirth. The unfortunate women, unnecessarily mutilated, would have probably recovered much more rapidly, and certainly much more safely, under intra-uterine disinfection and stimulus and support. Several of the reported cases are also open to this criticism. On the other hand, a number of fatal hysterectomies for puerperal sepsis have not been reported. Eliminating the unnecessary operations, and, were it possible, collecting all those that have been unsuccessful, it would appear that hysterectomy for puerperal sepsis has a frightfully high mortality. But even if but one case out of a hundred is saved, the operation deserves credit, for without it, in a case really requiring the removal of an infected womb, the patient must inevitably die.

An important problem in this connection is the decision whether in a given case operative treatment promises something for the patient or is surely foredoomed to failure; and, again, whether operative treatment is really required. These questions cannot always be answered till the abdominal cavity is explored after incision of its walls. But the following rule governs my own action at present:

If there is no evidence of extension of inflammation beyond the womb itself, do not operate.

This at once excludes a large number of cases: diphtheric endometritis; suppurative metritis, in which the abscess is nearer the uterine than the peritoneal cavity; catarrhal and suppurative endometritis, in which the tubes are not involved, to the extent, at least, of closure and collection in them of pus; phlebitis; sapremia. In diphtheric endometritis the removal of the womb has in my experience had no influence on the course of the disease. I have, indeed, not yet seen such a case recover under any treatment. If the abscess in suppurative metritis is near the uterine cavity, it will probably discharge into the birth-canal, as I have seen it do. If, on the other hand, it extends toward the peritoneal cavity, exudate is poured out, the womb is fixed, and an indication is afforded for operation. The other varieties of sepsis enumerated are obviously not amenable to treatment by abdominal section. On the other hand, the septic conditions that have demanded operative treatment after labor are, in my experience, purulent peritonitis, localized or diffused; suppurative metritis; ulcerative metritis, threatening and actually causing perforation; pyosalpinx and ovarian abscess; suppuration of the infiltrated connective tissue in the floor of the pelvis and at the base of the broad ligaments. This last condition calls not for abdominal section in the ordinary sense, but for an extra-peritoneal incision above Poupart's ligament or through the vaginal vault.

THERAPEUTIC NOTE.

THE HYPODERMATIC INJECTION OF MAGNESIUM SULPHATE AS A PURGATIVE.

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IN September, 1893, a paper on the hypodermatic injection of magnesium sulphate as a purgative, by Geo. H. Rohé, M.D., Superintendent, and J. Percy Wade, M.D., first assistant physician of the Maryland Hospital for the Insane, was read before the Pan-American Medical Congress, Washington, D.C.

The number of cases selected for observation was forty-six. The number of injections made was one hundred. In 67 per cent. the injection was successful; in 33 per cent. it failed. The dose varied from 1.86 grains to 4.5 grains. It was found that small doses acted as efficiently as slightly larger doses. In only one case was the larger dose (4.5 gr.) employed.

The shortest time for the injection to produce an evacuation was three hours, the longest fourteen.

In order to further test this remarkable property of magnesium sulphate twenty-five cases were selected, and fifty injections of from one to six grains were made. The average dose was 2.78 grains.

Whether a bowel-movement, occurring fourteen hours after the hypodermatic administration of magnesium sulphate in small doses can be considered as due to it, is, to say the least, an open question.

It will be seen that, even admitting the injection to be effective at the end of seventeen hours, in our cases the percentage of success is only eighteen, and that of failure, eighty-two.

CASE IV was usually constipated ten days, and in the habit of using enemata. The injection of one and one-half grains was followed by an easy movement in seven hours. Upon the following day, without any injection, two movements occurred.

CASE II.—On days upon which the injections were omitted, bowel-movements occurred, but it seemed that under treatment the stools were slightly softer in character.

CASES I, IX, XIV.—Subsequent observations showed the character and frequency of the stools to be the same without the exhibition of magnesium sulphate hypodermatically. In Case XIV increasing doses, from grains two to grains six, were used without any appreciable effect.

The question naturally arises: Are these bowel-movements solely due to the administration of magnesium sulphate hypodermatically, or would they have occurred without it? With the exception of two Cases II and IV, no change in the character or frequency of the stools was noticed. But considering all these cases as successful, the percentage of successes does not exceed eighteen.

In the majority of cases the results were negative.

In order to compare with the foregoing the action of magnesium sulphate given in the usual doses by the mouth, eleven cases were selected, and in these, with one exception, the results were negative with hypodermatic administration.

The results were as follows: after fifty injections there occurred in seventeen hours nine bowel-movements: one in the first hour; one in the second hour; one in the third hour; one in the fifth hour; one in the sixth hour; three in the seventh hour; and one in the ninth hour.

Taking a limit of fourteen hours as before, out of eleven cases, we have eight in which the results were successful, and two which responded in twenty hours, the character of the stools being appreciably altered. However, considering the latter as negative, our ratio is: success 72.7 per cent.; failure, 27.3 per cent.

Now comparing these results, with those of the hypodermatic administration, we have:

Hypodermatically: Success, 18 per cent.; failure, 82 per cent.

By the mouth: Success, 72.7 per cent.; failure, 27.3 per cent.

Although we do not consider the number of hypodermatic injections as conclusive, still, to us, the foregoing results cast considerable doubt upon the purgative property of magnesium sulphate exhibited hypodermatically in small doses.

In conclusion, we may say that the injections were made with solutions from tablets kindly furnished by Sharpe & Dohme, and that no local disturbance was produced, except in Case XXV, in which there occurred a small area of tenderness to pressure, which disappeared of its own accord in a few days.

Dr. C. B. Burr has resigned the position of superintendent of the Eastern Asylum, at Pontiac, Mich., to accept the superintendency of Oak Grove, a private asylum for the insane, at Flint, Mich. Dr. Burr is succeeded at the Eastern Asylum by Dr. E. A. Christian, formerly assistant superintendent.

MEDICAL PROGRESS.

Gastrostomy by the Method of Witzel for Carcinoma of the Esophagus.—Tait (*Pacific Medical Journal*, vol. xxxvii, No. 6, p. 328) has reported the case of a man seventy-two years old, who for seven months had complained of dysphagia and dull pain in the inter-scapular and precordial regions. At first only solid food caused discomfort, but in the course of four months the swallowing of liquids also became difficult. In attempting to swallow, the patient felt a sense of obstruction at two points, the first, probably spasmodic, corresponding to the origin of the esophagus, and the second being referred to a point about two inches above the lower extremity of the ensiform cartilage. Regurgitation of food occurred frequently, and the patient had lost sixty pounds in weight. An esophageal bougie encountered resistance at a point twelve and one-half inches from the teeth, but with some difficulty passed the obstruction, which apparently measured an inch and a half in length. For three weeks, at the patient's request, bougies were passed daily, causing much pain, but effecting no good. Finally the patient assented to an operation, and gastrostomy was undertaken. An incision, two and one-half inches long, was made, beginning a quarter of an inch to the left of the median line, parallel to and an inch below the costal arch. The presenting anterior wall of the stomach was incised and a No. 26 catheter introduced into the viscus toward the cardiac extremity. The catheter was then enfolded for a distance of two inches by two rows of sixteen Lembert sutures. Four stitches were introduced into the walls of the stomach, thrust through the abdominal wall and made secure after inserting the silkworm-gut sutures for closing the abdominal incision. A sterilized-gauze dressing was applied and a clamp was placed over the outer opening of the tube to prevent the escape of the contents of the stomach. Rectal alimentation was practised for the first twelve hours. Sixteen hours after the operation a nutritive injection of four ounces was made through the tube into the stomach. On the second day the injections were given every four hours, and after the third day the amount was doubled. Each injection comprised three eggs, three and one-half ounces of milk, two ounces of liquid peptonoids, and half an ounce of whiskey. Through an inadvertence the tube escaped on the second day, but was replaced without difficulty or ill result. Twelve hours after the operation the patient began to be troubled with difficulty and an incessant desire to clear his throat, probably from the irritation of the contents of the esophageal pouch above the seat of stricture. This symptom yielded to frequent irrigations of the upper half of the esophagus with a 4 per cent. solution of boric acid and an infusion of coffee. The wound gave no trouble; the silkworm-gut sutures were removed on the thirteenth day. The patient sat up on the sixth day, and walked about on the fourteenth day. It was hoped to discard the tube, using it only for the purpose of making the nutritive injections.

Coincident Intra-uterine and Extra-uterine Fetation.—Franklin (*British Medical Journal*, No. 1741, p. 1019) has reported the case of a woman, thirty-three years old, who had been in labor at term for eighteen hours, with apparently some obstruction at the pelvic brim. She had already borne five children, and always with lingering labors. The woman appeared very ill and collapsed, with pale, sunken face and anxious aspect. The pulse was one hundred and fairly good. The abdomen was very prominent, especially above the umbilicus, and also tense; there was dulness on percussion in both flanks; palpation yielded no information. On vaginal examination, the os uteri could not be felt either by the fingers or by the hand. The vaginal wall was swollen and edematous. A hard mass, about the size of a cocoanut, could be felt exactly above, apparently pushing over the posterior vaginal wall, so as almost to give the impression that it was the anterior wall. This mass was evidently between the finger and the os uteri, and had lifted the cervix beyond reach. It was slightly movable and elastic and gave the impression of being a large sarcomatous growth filling up the pelvis. Rectal examination afforded no additional information. The bowels had been freely open; there had been trouble for some time in micturition. Upon consultation it was decided to open the abdomen immediately, and an incision six inches long was made from a point about half an inch below the umbilicus. About two ounces of blood at once escaped from the peritoneal cavity. The uterus presented, and the placenta was seen to be attached to its anterior wall. An india-rubber ligature was slipped over the fundus and brought gradually into the pelvis below the uterus and appendages. An incision about six inches long was made into the uterine wall; a rush of blood followed. A full-term, living, male child was easily extracted, together with the placenta. The ligature being now tightened, the hemorrhage at once ceased. A stout wire écraseur was substituted for the india-rubber ligature, and during its application there was some more bleeding. The uterus and appendages were now removed. For safety, a stout silk ligature was also passed around the stump, in case the écraseur should slip. From the pelvis there projected a huge swelling from which the hemorrhage was rather free. On manipulation the tightened capsule of this supposed growth ruptured, and a dead, full-term fetus was liberated, the vertex being in Douglas' pouch behind the uterine stump. The fetus was rapidly removed, and there ensued a terrific and uncontrollable hemorrhage from tufts of placenta attached in Douglas' pouch and to the cecum and the intestines. The bleeding did not cease until every vestige of placenta was removed. The patient lived only half an hour after the operation, although transfusion was tried.

Scorbutus in Infants.—From personal observation and a study of recorded cases, Northrup and Crandall (*New York Medical Journal*, No. 808, p. 641) conclude that scurvy may appear at any period of infancy or early childhood, although the disease is most common between the ninth and fourteenth months. The lesions are essentially hemorrhagic in character, probably as a result of diapedesis. The most characteristic are subperiosteal hemorrhages. Hemorrhages into the muscular tissues, into the skin, and into the mucous membranes, are also more or less constant. The disease occurs in every grade of the social scale, but is more frequent among the rich than among the poor. The neglected

child that eats everything at the table may become rachitic or marasmic, but he obtains enough fresh food to protect him from scurvy. The disease rarely occurs in asylums or hospitals, because of care in feeding. Lack of fresh food is its most important cause. The use of proprietary foods and condensed milk produces more scurvy in young children than all other causes. Even fresh milk in small proportions is not sufficient to insure protection. Anemia and malnutrition are almost invariably present; a peculiar, sallow complexion is common. Scurvy is frequently superadded to rachitis, but in a considerable number of cases no evidences of rachitis are present. So-called acute rickets is, in most cases, probably in all, rickets complicated by scurvy. Pain is a constant symptom of scurvy in children. It develops early, and is usually pronounced. A varying degree of immobility of the extremities is common, and is frequently so marked as to simulate paralysis. This pseudo-paralysis disappears with the subsidence of the scorbutic symptoms. Subcutaneous hemorrhages, as well as hemorrhages from the cavities of the body, are very common, but are not necessary to a diagnosis of scurvy. The condition of the gums is characteristic. They are purplish, soft, spongy, and bleeding, and frequently show pronounced ulceration. When the teeth have not appeared the changes in the gums are usually slight, or entirely absent. Painful swelling of the lower extremities is the most common symptom; the upper extremities are rarely involved. The thigh is more frequently affected than any other part. Untreated scurvy is a very fatal disease. Recognized and properly treated, a rapid and complete cure is usually effected. The result of anti-scorbutic treatment is in fact one of the most certain means of diagnosis. Scurvy may be mistaken for rheumatism, stomatitis, rickets, sarcoma, osteitis, and infantile paralysis. The disease is of dietitic origin, and must be cured by dietetic treatment. Fresh milk, beef-juice, and orange-juice are the most effective remedies.

Paralysis following Diphtheria of the Genitals.—GAYTON (*Lancet*, No. 3691, p. 1301) has reported the case of a well-developed and well-nourished girl, four years old, who presented excoriation of the groins, labia, and vulva, in consequence of an offensive, copious vaginal discharge. The vulva and the vagina were greatly swollen and covered with a diphtheric exudation. No urine had been passed for two days and the bladder-dulness extended a considerable distance above the pubes. As exquisite tenderness was present, chloroform was administered and with a catheter a small amount of albuminous urine was withdrawn. The temperature was 96°, the countenance pallid, and the pulse feeble and slow. The throat had at no time been affected. Recovery duly followed frequent applications of a solution of mercuric chlorid, conjoined with the administration of iron and brandy and a generous diet. The albuminuria, however, persisted, and the pulse and temperature remained subnormal. In the course of a month marked strabismus was observed, together with paralysis of the palate and regurgitation of fluids through he nostrils and an irritating, noiseless cough. Later, visual accommodation was impaired and the paralysis became more universal, the typical apathetic look and bearing being very pronounced. The muscles of deglutition became involved. Much headache was complained of. Feeding by the mouth had finally to be resorted to, but death took place, apparently from the action of the poison on the bulbar centers.

Rapid Retrocession of Sarcomata after Induced Labor.—JAHR (*Centralblatt für Gynäkologie*, 1894, No. 23, p. 545) has reported the case of a woman, thirty-six years old, in the seventh month of her eighth pregnancy, of cachectic appearance, who presented a hard nodule, as large as a walnut, in the right breast, a tumor as large as a hen's egg in the right axilla, and one as large as a hazelnut above the right clavicle. Upon the pectoral muscle was an enlarged gland. Two nodules, as large as hazelnuts were present at the introitus of the vagina, two on the anterior wall of the vagina behind the introitus, and two also on the anterior lip of the cervix. Other nodules, forming a collection as large as a hen's egg, could be felt in Douglas' pouch. Frequently recurring attacks of severe abdominal pain caused the patient much distress and led to the belief that the peritoneum was the seat of metastatic growths. It was decided to induce premature labor, and this was effected by the introduction of a small amount of glycerin between the membranes and the uterus. A partially macerated, dead child was delivered, and the secundines came away without delay. Soon after the labor the accessible tumors were observed to be smaller in size, some almost entirely disappearing. The woman remained weak, and without much change in her condition death took place in collapse six weeks after the delivery. Sections of portions of several of the tumors disclosed the histologic structure of sarcoma.

Reflex Spasm of the Tongue, Lips, and Pharynx Induced by Irritation of the Great Occipital Nerve.—GALLERANI and PACINOTTI (*Neurol. Centralbl.*, 1893, No. 14; *Centralbl. f. d. med. Wiss.*, 1894, No. 19, p. 335) has reported the case of a man who had been struck upon the head twelve years previously. The site of injury was from time to time the seat of pain, both spontaneous and induced. In the stellate cicatrix a small, round, hard body could be felt, pressure upon which induced pain. There was present contracture of the muscles of the left side of the neck, so that the head was held downward and directed to the left, and there was also disturbance of speech, contraction of the lips, slight trismus, and some difficulty in swallowing. This spasmodic condition was a result of irritation induced by the presence of the foreign body, and disappeared after excision of the cicatrix at the point of union of the great and small occipital nerves.

The Seat of the Formation of Urea in the Animal Organism.—As the result of personal investigation and from existing data, KAUFMANN (*Archives de Physiologie normale et pathologique*, 1894, No. 3, p. 531) reaches the conclusion that urea exists in all of the tissues of the mammalian organism and in greater proportion than in the blood. All of the tissues seem to take part in the production of urea, although in varying degree. The liver is the most active seat of urea-formation. The production of urea seems due to processes of denutrition that take place in various tissues, and results especially from the work performed by the liver.

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THE NECESSITY OF BACTERIOLOGIC EXAMINATION IN MEMBRANOUS THROAT-AFFECTIONS.

As yet the most practical results of bacteriologic research have been in the direction of the prevention of disease. Perhaps the greatest good has been accomplished in the case of Asiatic cholera and typhoid fever, but very much has been done in the prevention of all of the infectious processes.

During the past four years bacteriologic studies have added much to our knowledge of diphtheria. That the Klebs-Loeffler bacillus is the cause of this disease may now be regarded as established beyond doubt. It has also been shown that most cases of so-called membranous croup and membranous rhinitis are caused by the same organism. Anatomic lesions identical in appearance with those encountered in diphtheria may also be produced by other microörganisms—notably streptococci and other cocci—so that the diagnosis is often not to be positively made without bacteriologic examination. But it is the so-called pseudo-diphtheria-bacillus that assumes the greatest importance. This organism is found not only in cases presenting a small amount of false membrane, and likely to be diagnosticated as follicular tonsillitis, herpetic pharyngitis, etc., but also in other cases with a more extensive formation of false membrane.

When this subject first began to attract attention it was claimed by a few that the pseudo-diphtheria-bacillus was constantly present in the pharynx—a condition of affairs comparable to the presence of the bacillus coli communis in the intestine and its relation to the typhoid-bacillus of EBERTH. This extreme view is now no longer held. But the relation of the pseudo-diphtheria-bacillus to the true diphtheria bacillus has not been so clearly determined. It is claimed by ESCHERICH and many others that the former is a separate and distinct organism, but the majority of investigators in this line of research now look upon the so-called pseudo-bacillus as only an attenuated form of the true diphtheria-bacillus, identical morphologically with the true bacillus, and only distinguishable from this by the inoculation of susceptible animals, in which case it fails to kill.

If, then, this pseudo-bacillus be only the bacillus diphtheriæ shorn of its virulence, the important question arises: Can this organism take on pathogenic properties again if subjected to certain conditions or sown upon proper soil? A definite answer to this cannot be given at the present time. Many bacteriologists have succeeded in diminishing the virulence of the true bacillus, so that it seems proved that the so-called pseudo-bacillus may be derived from the virulent form by placing it under conditions unfavorable for its development, such, for instance, as exposure to light. It is not so well established, however, that the virulent form may be derived from the pseudo-bacillus, although ROUX and YERSIN have augmented the virulence of the latter by inoculating guinea-pigs with it and at the same time with a streptococcus. Although neither microörganism alone could produce death, the two in conjunction proved fatal. Other microörganisms whose pathogenic properties have been lost by culture outside of the body may be restored to virulence by being passed through the body of susceptible animals. Until this question is definitely settled all cases with membrane in which the Klebs-Loeffler bacillus is found should be isolated. Observing clinicians have noticed that unquestionable diphtheria not uncommonly makes its appearance in families in which other members have been suffering with what was supposed to have been follicular tonsillitis, herpetic pharyngitis, or simple angina.

Recently quite a number of cases of sore-throat in which no membrane could be discovered have been investigated by different observers, who have

found virulent Klebs-Loeffler bacilli present, and there can be no doubt that these cases, though they themselves never present the clinical picture of diphtheria, may transmit the disease to susceptible persons. Such cases are, of course, more common in those constantly exposed to diphtheria.

Another important fact that has only recently been given prominence is that the true bacillus diphtheriæ or the pseudo-diphtheria-bacillus may be present in association with other acute infections. It has been thought that different infections could not exist in an individual at the same time, and that the throat-conditions of such diseases as scarlet fever, typhoid fever, and measles were not produced by the same microörganism as is known to cause diphtheria.

In the great majority of cases of scarlet fever the sore-throat is caused by cocci, either streptococci or staphylccocci, alone or associated, and yet in quite a large number of cases the bacillus diphtheriæ is present, as a rule in association with cocci, but in exceptional cases alone. The proportion of such cases is ordinarily not large, although MORSE found the Klebs Loeffler bacillus present in the throat in twenty-three of ninety-nine cases of scarlet fever examined in the Boston City Hospital.

The sore-throat of measles is usually caused by cocci, and yet the Klebs-Loeffler bacillus has frequently been found present; while in typhoid fever complicated by the presence of false membrane in the pharynx this microörganism has been found present in a very large proportion of the cases examined bacteriologically. As COUNCILMAN has stated, perhaps pseudo-membranous inflammations of the throat in the course of typhoid fever are frequently overlooked because of the hebetude of the patient.

In follicular tonsillitis quite a variety of bacteria have been found, but there can be no doubt that diphtheria frequently coexists with this affection.

Of course, in all of these states the throat-condition may not have been primarily caused by the Klebs-Loeffler bacillus, but the soil being rendered favorable, secondary infection has occurred. At any rate, as KOPLIK concludes, *we should regard all specks on the tonsils as suspicious, and if not diphtheric, at least liable to become so.*

When the wide distribution of the bacillus diphtheriæ, in either its virulent or its attenuated form, is considered, as well as the impossibility in many cases of determining clinically the nature of membranous throat-affections, the importance of systematic bacteriologic examination in all doubtful or suspicious cases must be obvious.

The example of the Health-Board of New York City in providing for bacteriologic examination in all suspicious cases were well followed by all large cities. Sterilized tubes containing cotton swabs can be obtained by any practising physician from any of numerous depots distributed over the city. With this material blood-serum tubes are inoculated, and in twenty-four hours a positive conclusion can be reached as to the presence or absence of the Klebs-Loeffler bacillus. Of the first 2000 cases examined in this way by the New York Health-Board 1442 were instances of true diphtheria, while 433 were examples of pseudo-diphtheria.

These figures indicate the amount of good to be realized from such a plan of systematic examination. It is perhaps no exaggeration to say that far more harm comes from the spread of diphtheria through mild cases, either not recognized or not reported and not isolated, than from the very malignant cases, for of these latter there is a popular fear, and they are summarily dealt with. It would, therefore, appear that health-boards could do far more good by instituting some means by which an accurate diagnosis could be made at once, and suitable measures in accordance therewith promptly adopted, than by detailing one or more men to watch a house harboring a malignant case of diphtheria, or by sprinkling carbolic acid in the back-yard and cellar of a house in which a case of ordinary severity develops.

Yet another point demands attention, viz., the time, after all membrane disappears, at which isolation may cease. In the light of recent investigations there is perhaps much harm done in this direction, for the bacillus diphtheriæ has been found in the pharynx and nasal cavity in cases of diphtheria a much longer time after the membrane has disappeared than isolation is usually enforced. In a series of cases examination would perhaps show that the Klebs-Loeffler bacilli are present in the nasopharynx on an average from ten to fifteen days after the membrane has disappeared, but it must be remembered that in individual cases they may persist for five weeks, and in a case mentioned by WILLIAMS they were present eight weeks after the disease had come to an end. The bacilli found after the disappearance of the membrane are not the pseudo-bacilli, but possess active virulence, as has been shown by the inoculation of guinea-pigs. The length of time that these bacilli persist after an attack of diphtheria

seems to bear no relation to the severity of the disease, but it does seem to be longer in cases in which there is some chronic disturbance in the naso-pharynx, while it is shorter in cases in which antiseptic sprays are long employed.

Isolation is certainly very often not continued long enough in private practice, while it has been found by Tobieson that of a series of forty-six cases discharged from a hospital as cured, culture showed the presence of the Klebs-Loeffler bacillus in twenty-four.

The rule adopted by the New York Health-Board could be followed with advantage by other boards, *i. e.*, that no case can be considered free from the danger of spreading the contagion until culture has demonstrated the absence of the Klebs-Loeffler bacilli.

EDITORIAL COMMENT.

Facilis est Descensus.—A correspondent has called our attention to a reprint from the *Journal of the American Medical Association* upon "The Treatment of Typhoid Fever," accompanied by a circular-letter, with both of which we have also been favored. If our readers will recall the circumstances under which the original publication of the article reprinted was made, the criticism it then elicited, the extraordinary journalistic departure and the ordinary abusiveness with which that criticism was met by *The Journal of the American Medical Association*, and the fact that the author was at San Francisco deemed worthy to be elected one of the trustees of The American Medical Association; if they will then for a moment consider the attitude of the said trustees toward outright nostrum-advertising, they will see that on the matter under consideration, which can hardly be designated one of outright nostrum-advertising, comment on our part would be as useless as it is superfluous. We, therefore, simply cite the title of the reprint and reproduce the circular with which we have been favored, leaving the members of the profession to form their own judgment.

"Can Typhoid Fever be Aborted? Read before the Mississippi Valley Medical Association, October, 1893. By J. E. Woodbridge, M.D., Youngstown, O. Reprinted from *The Journal of the American Medical Association*, February 10, 1894. Chicago: Printed at the office of the *Journal of the Association*, 1894.

"My dear Doctor: I have made especial arrangements for the reception at the Youngstown City Hospital of all cases of typhoid and malarial fever, where, if sent for my treatment, they will receive the best possible care and nursing; and, as by the treatment I have advised there is never any danger of intestinal lesions, there can be no objection to moving these cases any distance.

"May I invite your attention to the enclosed reprint of the first part of my paper, written for the Mississippi Valley Medical Association, the second part of which, giving treatment, will be sent if you wish it.

"Fraternally yours,

"John Eliot Woodbridge."

"Youngstown, O., August 13, 1894."

REVIEWS.

A Text-book on Diseases of the Eye. By Henry D. Noyes, A.M., M.D. Second revised edition; 816 pages, illustrated. New York: William Wood & Company, 1894.

Concerning this second edition the author says: "In revising this treatise numerous additions have been made to render it more complete. For example, those parts of cerebral anatomy and pathology which have a bearing upon the eye have been discussed at unusual length for such a work; this is true both for the motor nerves and for the optic nerves. Some chapters have been considerably modified and some have been rewritten; for example, those on granular conjunctivitis, asthenopia, sympathetic ophthalmia, glaucoma, cataract, hemianopsia, etc."

The selection of thin paper permits a desired reduction in the size of this volume. The illustrations on the whole are good, but the proof-reader has been careless at times, as for instance in "*atrophia*," p. 68; plate III, instead of A, p. 651.

Exceptions may be taken to certain statements in the chapter on refraction: Gr. x of homatropin to ℥j, instead of gr. xx, have in conjunction with cocain been found a very competent substitute for atropin by so many skilful ophthalmologists that the indications for its use should have passed the line of uncertainty in a new edition of a text-book. Likewise will a careful study of many thousand cases convince the investigator that perhaps one-half, if not more, have refractive errors less than 1 D., especially in astigmatism, and if the ophthalmometer and ophthalmoscope can claim only an accuracy of 1 D. within the true state of refraction, the question naturally arises: Why use these instruments if you have to rely, after all, upon the test-glasses? And if so, why not say so?

Careful refractionists will also disagree with the author's statement that the use of a mydriatic is rarely necessary in myopic astigmatism, but will insist that it should be employed in all refraction-work, at least up to the age of presbyopia, if good results are to be obtained.

It hardly becomes an author of Dr. Noyes' standing to ignore the much-discussed and often-contradicted question of "graduated tenotomy" with the simple statement of "I have had no experience with it." The author of a text-book should not pass over one of the leading questions of the day in such an indefinite manner, but should at least present the arguments and facts in such a way that the student can form some kind of opinion about the usefulness of the operation, and not beg the question by quietly ignoring it.

Objections will also be made by many to the advice as to wearing prisms constantly for moderate degrees of muscular error. While probably few will deny their usefulness, it should not be forgotten that they rarely, if ever, cure the existing evil, while gymnastic prism-exercises not only do away with the wearing of the prisms, but positively, and, as far as experience can demonstrate, *permanently cure* not only moderate, but quite large insufficiencies of the interni.

The chapters on diseases of and operations on the eye are written and illustrated in a clear and concise

manner, and the author's large experience shows all through this portion of the work.

A well-selected bibliography of useful literature on the eye and a carefully compiled index close a book which will prove not only an excellent text-book for students of ophthalmology but also a convenient reference-book for the general physician.

Biography of Eminent American Physicians and Surgeons. With Many Portraits. Edited by R. French Stone, M.D. Indianapolis: Carlin & Hollenbeck, 1894.

This is a work involving great expenditure of time, money, and industry. It consists of biographic sketches of living and dead physicians, in many cases illustrated with portraits, and in some cases with autographs. There is a general index, and a classified index under city names, giving the residence and line of practice of the living among the subjects of the sketches. How volumes of this kind are prepared, and what is the *quid pro quo*, not in the case of all, but in the case of 90 per cent., of the persons mentioned, is an open secret. The opinions of good men differ as to whether or not the practice is worthy. We have been interested in comparing the teaching list of Philadelphia colleges with the index of this volume, and the suggestiveness of the omissions of names of dead and living teachers thus discovered is very great. We give a partial list herewith: A. C. Abbott, Roberts Bartholow, J. Solis-Cohen, John C. Da Costa, W. S. Forbes, S. W. Gross, F. P. Henry, Henry Leffmann, Clara Marshall, William F. Norris, Charles A. Oliver, William H. Parish, John B. Roberts, J. H. C. Simes, J. Madison Taylor, James B. Walker.

The average of eminence of these teachers and authors is certainly not below that of the average "eminent physician and surgeon" mentioned in the work. It is an entertaining matter to distinguish between the articles in preparing which the subjects have had no part and those which are autobiographic in origin if not in form. Among the latter it is also interesting to observe the relative extent to which different men have "written themselves up." Thus the editor disposes of Dr. Osler in some twenty lines, while many a man whose name is unknown to us, and probably to nine-tenths of the medical world, takes two columns or more to describe in glowing terms his personal qualities, enlarge upon his wife's pedigree, give long lists of the distinguished professors and tutors whose instruction he has enjoyed, and catalogue every insignificant paper he has read at society meetings or inflicted on the journal-reading public.

Notwithstanding all this, the book contains much valuable and interesting information, and we trust the sale will be sufficiently great to compensate the editor for the time, labor, and money he has expended in its preparation.

A System of Legal Medicine. By Allan McLane Hamilton, M.D., and Lawrence Godkin, Esq., assisted by numerous Collaborators. Vol. I, 657 pages. New York: E. B. Treat & Co., 1894.

It is apparently nowhere definitely stated in this volume as to how many volumes this system is to comprise, but even if only an additional one is to be issued the work will be an extended manual of medical jurisprudence. There will soon be no lack of guidance in this field, for several "systems" are in course of publication. In the present work American contributors are exclusively engaged, except that incidental to the chapter on "Death in its Medico-legal Aspects" Dr. F. A. Harris has availed himself of the notes by a London physician of examination of mutilated remains found in various parts of that city. These are noted in the preface as the Whitechapel cases, but with one exception they do not seem to be the cases that made "Jack the Ripper" notorious some years ago. There is, indeed, in modern treatises on medical jurisprudence a tendency to excessive multiplication of illustrative cases and to full descriptions of them. This method makes interesting reading, for the records of this department are highly dramatic, but the tendency ought to be curbed.

The present volume contains numerous woodcuts and several color-plates. Among the latter is to be especially noted the frontispiece, a representation of the mucous surface of the stomach of a child poisoned by arsenous oxid. The plate representing the color-tests of some of the common alkaloids is an interesting example of perverted ingenuity. These colors can be easily obtained for comparison and study by the chemist, and why the publisher should be put to the expense of such unnecessary illustration is past guessing. Plates of color-reactions of rare bodies or of typical appearances that cannot be produced at will are, of course, valuable, but the intelligent chemist who wants to study the color-reactions of strychnin will do so with the materials themselves and not by examining these plates.

Among the specially interesting articles are those on "Ptomaïns" and on "Indecent Assault on Children." The former article is contributed by Dr. Vaughan, and the latter by Dr. Gibbs, examining physician to the New York Society for the Prevention of Cruelty to Children.

The illustrative cases in all parts of the volume are largely American, and serve to show how rapidly the larger cities in this country are approaching the degraded moral and physical state of the European capitals.

The typography is good, and there is a commendable absence of italics, displayed titles, and confusing subdivisions.

Tratato Elemental y Practico de Patologia y Cirugia Ginecologicas. Por M. M. Ponte. Primero volúmen. 8vo, pp. 475. Curazoa: A. Bethencourt & Son, 1891.

Gynecologic works in Spanish are a rarity, and this one from the pen of a Caracas practitioner, engaged as a specialist, is a novelty from Central America, which as yet has contributed but little to medical science. Dr. Ponte dedicates his work to Dr. Jules Péan, of Paris, well known in the field of gynecologic surgery, and according to his preface, must have completed his first volume in August, 1891, or nearly three years ago. His bibliographic list includes 201 names of authors consulted in preparing the volume, many of them well-known writers in French, German, Italian and English; among the last being the six Americans, Battey, Bozeman, Emmet, T. G. Thomas, Goodell, and Levis. Several Caracas physicians have been educated in Phila-

delphia; but among the young men of Spanish America, French is so generally learned that they naturally go to France for a medical education and degree, and are therefore most familiar with French medical ideas and progress. Cuban young men quite commonly learn both French and English, and hence are likely to study in the United States, where there are many from their own country engaged in business; but men of Spanish blood are not given to writing medical books, although they do contribute to their own journals; Spain is much behind Italy in original medical thought and practice.

This work of Dr. Ponte was prepared after a gynecologic experience of twenty-five years. It is purely elementary; treats of a large number of female diseases systematically and briefly, and presents no illustrations of any kind. Two hundred and fifty-nine pages are devoted to a study of the vulva and its diseases, including defects of development, hermaphrodism and dermatology; these constitute Part I. Part II treats of the vagina, and covers sixty pages; and Part III of the urethra, in fifty-five pages. The first part treats of forty-eight diseases and their varieties, located in the vulva. These are not illustrated by cases, and we are left in the dark as to their respective prevalence in Venezuela. This volume is mainly a compilation, and its author lays no claim to originality; the second may be of quite a different character.

Climates of the United States: in Colors. By Charles Denison, A.M., M.D. Being a popular edition of Denison's Charts. Chicago: The W. T. Keener Company, 1893.

Like many tables of medical statistics, the stereotyped meteorologic records which are invoked and quoted by the interested advocates of every sort of climate under the sun are usually worse than worthless; they are delusive. Actual climates refuse to be mapped and labelled. These conventional weather-records are looked upon by travel-wise people much as the veteran practitioner looks upon the crisp diploma of the just-hatched graduate: "From this document, young man, I assume that you intend to become a doctor."

An intelligent digest of the facts supplied by the Weather Bureau furnishes a plausible basis from which to deduce the leading characteristics of a given climate, even when actual residence discloses specially favorable or unfavorable characteristics which are utterly inexplicable from the recorded data. Climatography may, therefore, be said to bear about the same relation to the real characteristics of any locality that geography bears to the actual, verdure-clad landscapes and esthetic perspective of a country. Nevertheless, weather-records are as indispensable to the student of climates as maps to the traveller; and while Dr. Denison does not claim to have done as much for his pet subject as Mercator did for geography, he has added considerably to our facilities for studying and comparing local climatic conditions in the United States, and deserves the thanks not only of the profession but of the community, for arranging and presenting in a readily accessible form such salient facts concerning the climatology of this country as can be embodied in diagrams, colored charts, and apt compilations of accumulating statistics.

The work is issued in a style both convenient for the reader and creditable to the publishers.

Congenital Affections of the Heart. By George Carpenter, M.D. Lond. 8vo, pp. 103. London: John Bale & Sons, 1894.

For a proper conception of congenital affections of the heart, a knowledge of the various phases of development through which this viscus and its great vascular trunks pass is primarily essential, as many of such lesions are due directly or secondarily to abnormalities of development. It would be interesting (if the point could be determined) to know in what proportion of cases, if in any, defects of development occur independently of palpable exciting causes, such as inflammatory conditions, mechanical influences, traumatism, and the like. This thought is suggested by a perusal of the little book before us, in which is described the mechanism of the various morbid conditions of the heart and great vessels found at birth. The etiologic factors are briefly discussed, the symptomatology at greater length; the diagnosis, with its difficulties, is duly considered; the factors upon which the prognosis is based are indicated; the measures to be adopted in treatment are pointed out. The work, while not elaborate and discursive, presents in a simple manner the essential facts concerning a somewhat neglected subject.

The Care and Feeding of Children. By L. Emmett Holt, M.D., Professor of Diseases of Children in the New York Polyclinic; Attending Physician to the Babies' Hospital and the Nursery and Child's Hospital, New York. New York: D. Appleton & Co., 1894.

This neatly-bound and well-printed little book of sixty-two pages has been written for the use of mothers and nurses who have the care of children. The question-and-answer method has been followed, and everything has been sacrificed to clearness and simplicity. The book contains such knowledge as should be acquired by every nurse and mother, and is admirably adapted to fill the place for which it is intended.

Weekly Abstracts of Sanitary Reports Issued by the Supervising Surgeon-General, M.-H. S. Vol. VIII, Nos. 1 to 52. Washington: Government Printing-office.

This volume of thirteen hundred pages and index contains a large amount of statistics and other materials of sanitary interest, issued in weekly bulletins during the year 1893. It is impossible to give a summary of its contents, but we may note the text of the U. S. Quarantine Act, accounts of methods of disinfection and inspection at various foreign and domestic ports, and tables of mortality in the principal cities of the world. A feature of interest is the low death-rate from enteric fever in most of the cities of Europe.

Essentials of Physics. By Frederick J. Brockaway, M.D. Second edition. Pp. 318 and index. Philadelphia: W. B. Saunders.

This book is arranged on the question-and-answer system, though it seems from the brevity of the questions

and the fulness of the answers that the author is not much of a believer in the plan. There can be but little doubt that whatever disadvantages attach to condensed manuals for the use of students, the system of questions and answers is the most objectionable method. In this manual the questions amount to little more than substitutes for side-headings, and the answers frequently extend into accessory fields.

The present edition has been prepared with the assistance of some recently-issued works on physics. It is a good summary of this department of science.

VITAL STATISTICS OF THE DISTRICT OF COLUMBIA AND BALTIMORE, COVERING A PERIOD OF SIX YEARS, ENDING MAY 31, 1890. BULLETIN OF CENSUS OFFICE. BY JOHN S. BILLINGS, M.D. Government Printing-office.

ALTHOUGH consisting largely of mortality-tables, this bulletin deserves notice, because it presents a careful study of the distribution of causes of death in Baltimore and Washington by sanitary districts, a method that is much superior to classification by wards. Wards have usually merely political boundaries and ought to be disregarded in sanitary reports. Many maps of uniform scale are introduced, showing proportional prevalence of important diseases.

CORRESPONDENCE.

THE MEETINGS OF THE COLLEGE OF PHYSICIANS.

To the Editor of THE MEDICAL NEWS,

SIR: Noticing in THE MEDICAL NEWS a list of society-meetings, in which those of the College of Physicians are mentioned, I beg to state for the information of the readers of THE NEWS the conditions upon which visitors are received at meetings of the College or of its Sections.

1. Meetings of the College. "At the stated meetings, except during the consideration of the private business of the College, strangers may be present *on the invitation of a Fellow, who shall present them to the President* and shall be held responsible for the character and professional standing of the persons introduced by him."—*Ordinances and By-laws, Chapter IV, Section 4.*

2. Meetings of Sections. "No person not a Fellow of the College shall attend any meeting of a Section except by *specific invitation to that meeting by a Fellow, who shall give the name of the visitor to the Clerk of the Section* and be responsible for the visitor's actions at the meeting. No person not a Fellow shall take part in any discussion at a Section meeting, except on invitation of the President or Chairman."—*Standing Rules for Sections, Section 6.*

Yours respectfully,

CHARLES W. DULLES, *Secretary.*

NEWS ITEMS.

The British Medical Association will hold its sixty-third annual meeting in London July 30 and 31 and August 1 and 2, 1895, under the presidency of Dr. Russell Reynolds.

Cholera.—It is reported that twenty-one cases of cholera occurred at Marseilles between August 4th and 20th. About two hundred fresh cases of cholera are reported daily in Galicia. The mortality exceeds fifty per cent.

A Pasteur Institute in Vienna has been established for the treatment of cases of hydrophobia by the method of inoculation of Pasteur.

BOOKS AND PAMPHLETS RECEIVED.

Enterorrhaphy; its History, Technique, and Present Status. By N. Senn, M.D., Ph.D., LL.D. Reprinted from the Journal of the American Medical Association, 1893.

A Manual of Minor Surgery and Bandaging, for the Use of House-Surgeons, Dressers, and Junior Practitioners. By Christopher Heath, F.R.C.S. Tenth edition. Philadelphia: P. Blakiston, Son & Co., 1894.

A Case of Suprapubic Cystotomy in which the Bladder was Distended with Air Instead of Water, and Four Hundred and Ninety-five Calculi Removed. By W. W. Keen, M.D. Reprinted from the Journal of Surgery, Gynecology, and Obstetrics, 1893.

Relation between Diseases of the Upper Air-passages and Diseases of the Eye. By J. G. Carpenter, M.D. Reprinted from the University Medical Magazine, 1893.

The Mechanical Treatment of Osteitis of the Knee. By Henry Ling Taylor, M.D. Reprinted from the New York Medical Journal, 1893.

Fourth Annual Report of the College Settlements Association. From September 1, 1892, to September 1, 1893. Philadelphia: Avil Printing and Lithographing Co., 1894.

A Study of Dietaries. Partial Report of Dutton Fellow, College Settlements Association, 1892–93. By Amelia Shapleigh. Pamphlet.

The Subjective Value of a Social Settlement. By Jane Addams. Reprinted from the Forum, for November, 1892.

A Contribution to Our Knowledge of Epidemic Cerebro-spinal Meningitis. By Simon Flexner, M.D., and Lewellys F. Barker, M.B. Reprinted from the American Journal of the Medical Sciences, 1894.

Gangrene of the Scrotum. By Charles W. Allen, M.D. Reprinted from the Journal of Cutaneous and Genito-Urinary Diseases, 1894.

Opium as an Hypnotic in Old Age. By J. Y. Dale, M.D. Reprinted from the University Medical Magazine, 1894.

The Annual Report of the Superintendent and Physician of Walnut Lodge Hospital, Hartford, Conn., at the Annual Meeting, January 3, 1894. Hartford, Conn.: Press of Case, Lockwood & Brainard Co., 1894.

Total Extirpation of the Uterus. Cases Illustrating Various Indications for and Different Methods of Performing the Operation. Remarks upon Removal of the Uterus in Diseases of the Appendages. By George M. Edebohls, A.M., M.D. Reprinted from the Transactions of the New York Obstetrical Society, 1892.

The Technique of Total Extirpation of the Fibromatous Uterus. By George M. Edebohls, A.M., M.D. Reprinted from the American Journal of Obstetrics, 1893.

Addresses by the President, Samuel C. Busey, M.D., at the Celebration of the Seventy-fifth Anniversary of the Medical Society of Washington, D. C., and at the Banquet, February 16, 1894. Pamphlet. Washington, D. C.: Gibson Brothers, 1884.

Twenty-sixth Annual Report of the New York Orthopedic Dispensary and Hospital, 1894.

Improved Apparatus for Pott's Disease of the Spine. By Henry Ling Taylor, M.D. Reprinted from the Canada Medical Record, 1893.

Infantile Scorbutus. By Henry Ling Taylor, M.D. Reprinted from the American Medico-Surgical Bulletin, 1894.

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ORIGINAL ARTICLES.

THE USE AND ABUSE OF ARSENIC IN THE TREATMENT OF SKIN-DISEASES.[1]

BY ISADORE DYER, PH.B., M.D.,
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PROFESSOR OF DERMATOLOGY IN THE NEW ORLEANS POLYCLINIC; LECTURER AND CLINICAL INSTRUCTOR ON DISEASES OF THE SKIN, MEDICAL DEPARTMENT, TULANE UNIVERSITY; DERMATOLOGIST TO THE CHARITY HOSPITAL; CONSULTING DERMATOLOGIST TO THE EYE, EAR, NOSE, AND THROAT HOSPITAL, ETC.

WHEN Erasmus Wilson so strongly advocated the usefulness of arsenic in the treatment of skin-diseases, without discriminating closely, and only qualified his indorsement with the caution to be employed in its use, he but voiced the enthusiasm which at that time had placed arsenic upon the pedestal that it still tends to occupy. At the time of Biett, Wilson, Cazenave, Schedel, Behrend, and others, the general practitioner had scarcely escaped from the simple classification of skin-diseases into eczema, scrofula, and syphilis, with an occasional inspired diagnosis of psoriasis, herpes, or the like. It is hardly to be wondered at, then, that the general practitioner should welcome a remedy that had found favor with the dermatologists of the time in the very diseases under whose shelter he had found a refuge-diagnosis. Cazenave did not qualify his adjectives when he wrote of arsenic as an heroic remedy, meaning not radical but supreme. Almost every good thing in medicine has found its abuse in its early recognition, and soon a rational measure is made the excuse for enthusiastic excess, and the true value of a remedy is hidden by its indiscriminate usage.

Arsenic has drifted from its essential usefulness, and has become to a multitude of routine practitioners a panacea for all cutaneous affections. At the slightest intimation of a disturbance of the skin there is an echoing response in the physician's mental *vade mecum* of arsenic. In its various shapes and combinations, arsenic is administered for a variety of skin-affections, many of which could in no rational way be influenced by the drug. I have seen typical cases of the parasitic diseases of the skin, even the itch, treated for a long period with arsenic, as if painting the cellar would patch the roof.

[1] Read before the Texas State Medical Association, at Austin, April 25, 1894.

The reaction has come, and it is a rational one at that. Instead of being employed to meet all possible and impossible indications, arsenic can be relegated to specific usefulness in therapeutic measures, and permits only of exceptional variations from its proper sphere. After long study and investigation, Dr. Fox, of New York, in collaboration with other dermatologists in this country, arrived at the conclusion that arsenic was not only of no service in some of the diseases in which it is often administered, but that it did positive harm, not only in the production of additonal trouble in the skin, but by preventing the use of other and better remedies. Moreover, these investigations elucidated the fact that there was no series of cases in which arsenic could be said alone to have produced a cure.

With this kernel of sound meat for our consideration, I feel that a logical discussion of the uses first, then the action and abuses of arsenic, will, in some small measure, carry a germ of the reaction to those of you who have a penchant for arsenic-administration, without knowing just why.

The action of arsenic is twofold—local and general. Topically applied, its action is first of all stimulant and irritant; and if sufficiently brought in contact with the surface it is caustic. Generally, arsenic is a nerve-tonic, acting on the vasomotor centers, and decidedly affects the peripheral nerve-terminations. Its action on the spinal cord is irritant, and an overdose is evidenced by a widespread multiple neuritis.[1] The evidence indicates that small doses check tissue-change and decrease nitrogenous elimination, while large, toxic doses have the opposite effect. Arsenic is a direct stimulant to nutrition. It is alterative.

Upon the skin, the effect of ingested arsenic is much the same as that of the drug when used locally.[2] There may result inflammatory redness, vesicles, pustules, etc., a sensation of heat, burning, pain, and there may be exfoliation of the epidermis in large flakes.

Arsenic is selective of diseased tissue, picking it out and acting on it.[3] The drug is known to exercise its influence almost exclusively upon the epithelium of the skin. Its chief action here is upon the mucous layer of the epidermis. It has a similar action upon the mucous membranes, viz., increasing

[1] Wood, H. C.: Therapeutics and its Practice, 1889, p. 500.
[2] Morrow: Drug-eruptions, 1887.
[3] Crocker: Diseases of the Skin, 1893.

the hyperemia. At first stimulant to the cell-forming elements of the rete, arsenic soon causes such a degree of overwork that the power of cell-production is finally lost, or, as Jamieson[1] well expresses it, it induces in them a premature old age.

In those skin-diseases, then, in which an alterative action is demanded, arsenic is of service. Its stimulant action is indicated when there is a stagnation of the cell-forming element in the rete, or when this element is depressed by a chronic inflammatory process. Just how long and just how far this stimulation can be kept up must be judged from the degree of activity of the cell-production.

Arsenic must find some usefulness in the diseases of the skin of vasomotor origin, whether acute or chronic, and this point should be determined before the drug is advocated or condemned. In deep-seated lesions of the skin, from what we have seen, arsenic is not indicated, and if used, the result would be questionable. Because of the tendency to produce hyperemia, arsenic ought not to be given in acutely inflammatory conditions, which the drug must necessarily make worse. On just the same account it is contra-indicated in the pruritic diseases, because, in itching, the chief underlying condition is hyperesthesia, whether in its common signification of an excessive irritability of the sensory nerves, or in the sense of an excess of an engorgement of sensation.[2] The attendant irritation and subsequent hyperemia make itching persistent, and arsenic would only add to the production of the agony.

It is becoming more and more the practice of dermatologists to treat cutaneous diseases according to their pathology. Subjective symptoms, of course, are met, as in other diseases, but the etiology is investigated, and the treatment based on a pathologic plane.

In the parasitic diseases, the most effective antagonist to the special parasite is selected for use; in the pustular, or the coccogenous diseases, as Hyde has recently called them, antiseptic measures are employed locally, while, internally, anti-pyogenic remedial agents are administered. When there is an acute inflammatory condition in or on the skin, the points of attack, both locally and internally, are through the reduction of the inflammation.

The diseases for which arsenic seems to be especially useful are few. At the top of the list stands psoriasis, then chronic eczemas, and the lichens, with some of the hydroa.

With many dermatologists arsenic is preëminently the essential treatment of psoriasis. According to Brocq, Vidal used arsenic for a long time, to the exclusion of other medication. He administered the drug in large doses for a long period of time, and at the cost of systemic intoxication. In recommending arsenic in chronic psoriasis, Brocq apologizes for its accidents, and warns the physicians to guard against the possible inconveniences of treatment.[1] Pye-Smith commends the use of arsenic in psoriasis, but suggests that it be carried to tolerance, then the dose dropped to the original small dose, and the same method of administration resumed. Duhring says that arsenic is unquestionably of great value in psoriasis, but should be withheld until the disease is settled in its course. Weyl[2] and Anderson,[3] on the other hand, state that the more recent the eruption, the more readily, as a rule, psoriasis yields to arsenic, while chronic and relapsing cases are more rebellious.

It is noticeable that arsenic is of service in some cases of psoriasis, while in others the results are negative. While the etiology of psoriasis is still *sub judice,* and the neuropathic vies with the parasitic and the syphilitic element as causative factors, it is difficult to determine what the reason should be for the discrepancies in the effect of treatment. It must be remembered, however, that psoriasis is a self-limited disease, tending to get well of itself. It recurs periodically and has seasons of recurrence, be it winter or summer, spring or fall. Some cases get well in spite of all treatment, and it is questionable if arsenic plays any particular part in the cure. Few cases of psoriasis are treated internally alone, and the external treatment may deserve the credit. Granting, however, that arsenic is capable of removing the disease in given cases, and fails in others, it must act in the first instance, if the therapy of the drug as acknowledged is correct, through its effect upon the peripheral nervous system first, or by its direct local presence. Its failure to act in one of two apparently parallel cases would indicate that this nervous element was lacking in the case that failed to respond to arsenic.

The pathology of psoriasis gives evidence of cell-exudation and cell-proliferation. There is moderate inflammation, with increased development of the layers of the rete. There is involvement of the papillæ of the corium, and a consequent and enormous increase in the horny cells of the epidermis, from the rapid proliferation of aborted cells from the mucous layer. Auspitz[4] contends that psoriasis is not inflammatory, but due to an anomaly of the process of cornification, or the keratinization of the epithelial cells. The etiology of psoriasis is unknown, the pathology still in some question, and the treatment thoroughly empirical. Arsenic occu-

[1] Diseases of the Skin, 1892.

[2] Bronson: Trans. Amer. Dermatological Association, 1893, p. 38.

[1] Maladies de la Peau, 1892, p. 699.

[2] Ziemssen's Handbook.

[3] Diseases of the Skin, 1887.

[4] Crocker, p. 258.

pies a strong place in the list of remedial agents, and seems to act in overcoming the cell-aborting process of the rete by stimulating a healthy activity, while the general tone of the skin is raised through the stimulating effect of the arsenic upon the peripheral nerve-plexuses and the nerve-endings themselves.

The term lichen really includes but two types of a chronic inflammatory eruption consisting of papules. In lichen ruber acuminatus the papules are conical and tend to coalesce. In lichen ruber planus they are flat, square, angular, and vary in color from pink to violet, although sometimes white. The essential pathologic process in both types begins in the corium. In lichen acuminatus the process is chronic and inflammatory, beginning in and around the hair-follicles, with a consequent enlargement of the sheaths of the follicles through a marked cell-development.[1] In lichen planus the process begins around a sweat-gland, usually in the upper part of the corium, resulting in a subsequent thickening of the rete and enlargement of the papillæ by a down-growth of the inter-papillary processes. The etiology of both, like that of psoriasis, is still an open question. That the distribution is suggestive of a nervous origin, and the itching (paroxysmal in type) suggests a nerve-hyperemia is about all there is in evidence. The indications for treatment are similar to those in psoriasis. In the lichens, however, the general health is profoundly influenced and nervous symptoms are present, notably nervous exhaustion, hysteria, and the like. Arsenic fails here, as in psoriasis, in many cases. In chronic cases the drug is certainly useful. It must act in hastening the shedding of the excessive cell-proliferation by controlling the nerve-terminals.

Chronic eczemas and eczemas of reflex nervous origin form another group of diseases treated by arsenic. It should go without saying that in the acute types of eczema, in which there is edema, infiltration, vesicles, redness, and itching, all evidences of an acute catarrhal condition, arsenic is absolutely contra-indicated. When this condition has thoroughly subsided, leaving behind a marked cellular deposit, with enough swelling, redness, itching, and scaling to determine its eczematous nature, then arsenic may be of service. Stimulation is the essential of the treatment, and by reawakening the dormant cells of the rete, already on their way to connective-tissue degeneration, arsenic finds its usefulness.

Pemphigus and the tropho-neurotic diseases, with bullous eruptions, are favorably affected by arsenic. Nervous lesions are often found associated with pemphigus. These may be either vasomotor or tropho-neurotic; in either case constituting an indication for the administration of arsenic, one of whose properties is an influence upon the vasomotor center.

Dermatitis herpetiformis belongs to the same group as pemphigus, being associated, according to Elliot, Duhring, and others, with some reflex neurotic causation. Shock, grief, anxiety, overwork, pregnancy, and the climacteric in women, are among the important factors. Crocker classes dermatitis herpetiformis with hydroa, although the eruption is varied in type, and presents lesions of papular and urticarial tendency, but more commonly characteristic bullæ. Most observers accept the neurotic factor in the etiology and confess the uncertainty of the pathology. The distribution and the resemblance to the eruptions of pemphigus, with the pronounced symptoms of nervous lesions, evidenced by a variety of manifestations, depression, melancholia not uncommonly, and the tendency to recur under conditions of nervous strain, all point to the neurotic factor. On these grounds, arsenic is given, and is found useful in many cases.

The diseases named form only a small part of a long list of cutaneous affections, but include those conditions which, from a rational standpoint, should yield to the accepted therapy of arsenic. They are but a fraction of the diseases for which arsenic is prescribed.

We have seen that arsenic is positively contra-indicated in acutely inflammatory diseases, excepting those of bullous type, distinctly referred to a vasomotor or nervous origin. Arsenic increases the hyperemia of the skin, and in cases of idiosyncrasy, or under prolonged administration, is capable of producing many local disturbances of the skin. Devergie[1] was the first to announce the fact that cutaneous lesions may be caused by the internal administration of arsenic. These skin-manifestations may take the shape of papular, urticarial, vesicular, erysipelatous, and pustular eruptions. To these may be added an erythematous or scarlatiniform eruption.

According to Hutchinson, herpes zoster may be induced by the ingestion of arsenic, and in subjects predisposed to carcinoma arsenic may act as the determining cause.[2] Boils and carbuncles occasionally result.

Among the inconveniences, as Brocq calls them, of arsenic-administration, there is often marked brownish discoloration of the skin occurring on the face and various parts of the body. This occurred in two cases that came under my own observation. In one patient, a psoriatic subject, arsenic has been given for several relapses, and had last been admin-

[1] Crocker, op. cit.

[1] Morrow: Drug-eruptions, p. 70.

[2] Jamieson, op. cit., p. 539.

istered three years before I saw the patient. There were numerous pigmented patches on the extremities, which seemed to have no tendency to disappear. In the second case, one of chronic eczema, Fowler's solution had been given for two months previous to my seeing the patient. There was marked brownish pigmentation in patches over both legs and thighs, which persisted, and was still present six months after the eczema was cured. Only recently Carrier[1] has reported a case of pigmentation of the whole body occurring suddenly during the treatment of a case of psoriasis, and further complicated by warty growths upon the palms and soles, all following the internal use of arsenic. Mathieu[2] has within a month reported a case of chronic arsenical poisoning in which the skin of the patient was bronzed, or slate-colored, in various regions of the body. On the palms and soles, as in Carrier's case, there was marked hyperkeratosis. These discolorations are attributable to the stimulated action of the prickle-cell layer, in which the pigment-cells are found, and, according to some authorities, in which the pigment is said to be formed.

These, then, are some of the chief accidents of arsenic-administration. Notwithstanding these, it is advisable to use the drug in selected cases. But, in the face of these, is it justifiable to carry on a systematic use of the drug in diseases in which the indications are not for it or are positively against it?

Arsenic is popular in the treatment of acne, notwithstanding the fact that the drug has no action on the deep layers of the skin, while acne is essentially a disease due to inflammation of the sebaceous glands or hair-follicles, which are found only in the reticular layer of the corium or in the subcutaneous connective-tissue layer.

Arsenic is often given in the erythemas, both simple and exudative, in spite of the evidence of the presence of acute inflammation in the skin, and marked exudation, which the use of arsenic tends only to increase.

Urticaria is essentially an exudative disease, attended with edema, which is the pathologic origin of the clinical evidence, namely, the wheal. The vasomotor element in the etiology might excuse the administration of arsenic, but the clinical symptoms, with the pathology, would more than counterbalance this. Aside from increasing the exudate, arsenic tends to produce edema, and in overdoses is itself responsible for an urticarial eruption.

Malaria, exposure, and the ingestion of certain medicaments are among the causes of herpes zoster. The direct occasion of the eruption is a peripheral neuritis. How often is arsenic given for this condition, although contra-indicated by its physiologic action, because the drug is a stimulant to the peripheral nerve-endings, and in tonic doses, or given for a long time, it produces this very class of eruption. Nielssen[1] found 10 cases of herpes in 557 cases of psoriasis treated with arsenic, while not one case of herpes occurred in 220 cases treated with potassium iodid.

I have referred to the indiscriminate use of arsenic in parasitic diseases of the skin, which can in no way be affected by the drug. We cannot deny that in some such diseases of the skin arsenic is of undoubted service, but these cases must be selected. Even in those diseases in which there is some specific and rational effect expected from the drug, there is in many instances conspicuous failure. It must be remembered that in many cases of cure attributed to arsenic, some other element in the external or internal treatment may be responsible.

When dermatologists themselves confess that the accidents from arsenic form a large proportion of the drug-dermatoses, and the patient is often afflicted with a permanent souvenir of large and heroic doses of the drug, while the skin-disease aimed at pursues its course not much affected, we should call a halt and question the value of the drug and its indiscriminate use.

We must arrive at the conclusion that instead of being the first, arsenic should be one of the last remedial agents to be used in the treatment of diseases of the skin, and when selected it should only be used in chronic diseases with a general distribution and in diseases associated with a neurotic element.

17 AND 19 BARONNE STREET.

[1] THE MEDICAL NEWS, February 3, 1894.
[2] Semaine Médicale, No. 14, vol. ii, p. 167.

THE RADICAL CURE OF URETHRAL STRICTURE BY THE RESTORATION OF THE MUCOUS MEMBRANE TO A HEALTHY CONDITION.

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RECENT advances in our knowledge of the pathogenesis and mechanism of stricture-formation require us to recast, so to speak, our conception of the condition, and at the same time render obsolete or inadequate the definition of certain terms as well as certain classifications once appropriate and sufficient. It is this state of transition that obliges me to ask the indulgence of the Association while I briefly define the meanings which I, at least, attach to certain terms in common use; otherwise I cannot hope to make myself clear. And, first of all, is the definition of the condition we know under the name of stricture. It is plain that we must abandon the mechanical definition which made one of its

[1] Quoted in Crocker, op. cit., p. 207.

symptoms, viz., obstruction, to stand for the disease itself. It is equally plain that a precise definition can only be reached by approaching the problem from a pathologic standpoint.

In a paper reviewing this subject, read by me at the Newport meeting (1889) of this Association, the reasons were given for defining stricture of the urethra to be a chronic contracting peri-urethritis. I have seen as yet no objection raised to this as a pathologic definition. So far as the pathogenesis is concerned, it seems not too much to say that the theory of the leakage of urine or some of the constituents of this complex excretion, through a damaged or absent mucous membrane, for which we are indebted to Mr. Reginald Harrison, is now accepted as the correct interpretation of the process. Such a conception of the nature and etiology of stricture as a surgical disease, placing, as it does, the point of pathologic departure in the urethral mucous membrane, and regarding the subsequent development of the stricture-tissue at the expense both of urethral dilatability and the integrity or even the existence of the normal circum-urethral tissue as dependent altogether upon the lesion of the mucous membrane, both for its inception and its evolution, must of necessity profoundly influence those procedures that aim at its radical cure. Moreover, besides giving new prominence and value to other hitherto little studied features, it enables us to accept a more definite and better classification, and none seems to me more available for our purposes than that of Voillemier, which divides them into inflammatory and cicatricial; the first being lined still with mucous membrane, damaged though it be, the last by none at all, the mucosa having been replaced by cicatricial tissue. Under one or other of these headings any number of subvarieties may be placed, if thought necessary for descriptive purposes.

It is plain, then, that any therapeutic procedure which aims at radical cure of stricture must aim primarily in the one case at a restoration to the normal state of a damaged urethral mucous membrane, and in the other to the replacing of a destroyed portion. Now, whether it be merely coincidence or consequence of this newer conception of the causation and nature of stricture, certain it is that this is just what surgeons of to-day are doing, and in many cases with most flattering success. Warrant for this assertion is found by a reference to the successful cases, observed for a sufficient length of time, of exsection of the strictured areas, followed by suturing of the divided ends, reported by Koenig, of Göttingen, and by Heusner; of exsection of strictured areas, with transplantation of normal mucous membrane, by Wolffler, etc., and the good results attending the immediate and accurate suturing of the divided ends of urethræ severed by traumata, reported by various surgeons. Many such cases are being reported, and there is no question of the soundness of the practice. With what object is this done, unless to obtain a continuous normal, or, as Mr. Harrison would call it, a urine-tight mucous membrane? But it is of inflammatory and not of cicatricial stricture I wish here to speak.

The researches of Oberlander and Neelson have taught us that the inflammatory form of stricture may be expected to follow only upon such a mucous lesion as involves the glands of Littré. Moreover, these authorities have, with others, demonstrated the curability of these lesions by proper topical treatment, especially in the earlier stages, a point long before insisted upon by Otis. Influenced by the results obtained by these observers, and by the teaching of Harrison as to the essential cause, and having for a long time been struck with the rapid and satisfactory disappearance of those hard, fibrous walls surrounding old urinary fistulæ (tissue in every way resembling stricture-tissue), after the urine has ceased to flow over them, I had, as announced in a paper read before the Missouri State Medical Association in April, 1883, been combining topical applications with dilatation, with the view of getting a radical cure if possible in at least some suitable cases. At that time, however, I had not observed any case long enough to be sure of permanence of result, but I have continued the effort, and it is the net outcome of this clinical work that I desire to communicate to-day. Let me say again, that the entire treatment was based upon the theory that, if the mucosa could be restored to a normal state while the stricture-band was undergoing softening and inflammatory involution, we might hope to obtain a radical cure, which would be manifested by failure to recontract after leaving off the use of dilating instruments. Now, it is evident that observation for a number of years is necessary in such cases to justify one in drawing conclusions, and it is equally plain that few patients are so situated as to afford one such opportunities. Thus of fourteen patients upon whom I attempted to practise this method since December, 1887, five only remained under observation after the first year, a time entrely inadequate for the purpose. Of these five, three had linear strictures, and of these three two remained cured after two years' and one-third year's observation, respectively. The third has, though remaining under observation up to the present time, had two fresh gonorrheal infections in sixteen months.

Wishing here to deal only with the question of the influence of local applications made with the intention of restoring to its integrity the damaged mucous membrane lining inflammatory strictures, a proper regard for sources of error would compel us

to throw out of this consideration cases of linear stricture, for it is evident that in this sub-variety only a narrow zone of mucous membrane is in a pathologic state, so narrow that as a matter of fact only diaphragm-like membranes are lifted up, and it is more than probable that carefully practised, simple dilatation will cure this form of stricture without other aid from topical applications. The anatomo-pathologic condition here seems to be a rapid development of the contracting stricture-tissue in and immediately underneath the mucous membrane. Such strictures, though often difficult of penetration with instruments, on account of the eccentricity of their openings, do not often require section, for the reason that only to an inconsiderable extent are the circum-urethral tissues infiltrated with the fibrous, contracting elements. The beneficial influence of pressure upon this narrow zone of damaged urethral membrane is often in itself sufficient to restore it to the normal condition. In this way I think are to be explained many reported cases of cure by all methods of treatment, which methods are found to be entirely inadequate in cases of annular stricture. It is interesting to note in this connection that some of the older surgeons recognized the difference in the curability of these two forms of stricture.

There remain, then, two cases only for present consideration. Of one (No. 6 on my list) but little need be said, as it was apparent from the beginning that the mucous membrane was too extensively damaged to leave any hope of restoration, and the patient only submitted to the treatment in the belief, not encouraged by me, that in some way his wretched condition might be improved. This was a case of extensive inflammatory stricture of almost the entire penile urethra. When the man came under my observation, ten years ago, there were extensive deposits of stricture-tissue around that portion of the urethra extending from the posterior border of the *fossa navicularis* well back into the bulbous sinus. The largest instrument that would pass through all of the strictures was No. 8 F. This condition had followed numerous attacks of gonorrhea, and the stricture had existed for such a length of time that in many portions the fibrous, nodular condition had been reached. Continuous dilatation, interrupted by frequent attacks of urinary fever, brought the duct up to No. 14 F., when under ether internal urethrotomy enabled me to pass a No. 26 F. conical instrument. So indurated were the urethral walls that the duct seemed never to empty itself of urine, and the damaged lining was constantly bathed in this fluid. This caliber was only maintained by repeated introductions of the sound, supplemented by more or less extensive internal urethrotomies, practised during a period of several years. When I first surveyed the urethra with the endoscope I looked upon a mucous membrane which seemed to be pale, atrophied in some places, perfectly smooth, and apparently adherent to the fibrous tissue underneath; in others lined with granulations or wart-like excrescences. On the roof, where I had cut, the tissues seemed to be tucked in, so that a view of the bottom could not be obtained. I was struck with the pale appearance, the apparently bloodless condition of the urethral walls. In a few spots where the stricture-tissue was thickest the mucous membrane seemed to be smoothest and palest. The granulations and warty-covered sections were scraped with cotton on the end of a probe, and to the entire stricture-area a 2 per cent. solution of silver nitrate was applied through the tube, after cleansing. The patient still maintains that these applications have done him good by way of relieving pain on instrumentation, which he performs for himself, and in lessening the tendency to contraction. My own belief is that what of benefit has been derived is to be attributed not to the local applications, but to the long-continued use of the steel sound. The man is now forty-three, has married since he has been under my care, lives a very regular life, and takes excellent care of himself.

In the following case we have an excellent example of the adequacy of this method in a limited number of instances, even excluding linear stricture:

William S., thirty-four years old, married, was first seen February 14, 1885, when the following note was made of his examination: The meatus is narrow (19 F.); there is an annular stricture at the depth of three inches which admits a No. 12 F., and measures one-fifth inch broad; larger bulbs detect the conical shape of the anterior stricture-face. A second stricture in the bulbo membranous part admits only a filiform bougie. The patient has never received any injury to the parts, but attributes his trouble to a gonorrhea which he had sixteen years previously. The examination produced very slight bleeding.

On March 2, 1885, I cut the anterior and divulsed the posterior stricture to 30 F. On March 3, 1885, I visited the patient on account of a slight urethral chill, which came on five hours after the operation. On March 8, 1885, I passed a 30 F. and caused slight bleeding. On March 9, 1885, the patient announced his intention of going South to accept employment. On April 12, 1887, he returned, with both strictures recontracted to their original size; he had neglected the introduction of the sound; had dissipated a good deal; had retention on the previous evening, which had been relieved by Dr. Mayger, who gave a hot bath and opium. I aspirated above the pubis and withdrew fifteen ounces of slightly cloudy undecomposed urine, and tied in a filiform bougie for continuous dilatation.

For six weeks, viz., from April 12 to May 24, 1887, inflammatory dilatation, at first continuous and after-

ward intermittent, brought the urethral caliber up to 31 F. The patient then again ceased to attend. On December 12, 1887, he returned, when an examination showed that the anterior annular stricture had recontracted to 18 F., while the posterior stricture was not discoverable with the bulb admitted by the anterior. Endoscopic examination showed a zone of urethral wall at the site of the anterior stricture, estimated at a little more than a quarter of an inch in breadth, paler than that immediately behind or in front of it; lusterless, with here and there small darker spots, looking like submucous hemorrhages. The mucous membrane fell away from the end of the tube in irregular, transverse, shallow folds. Some minute bloodclots came away on the cotton introduced to wipe off the surface. On the whole the membrane looked paler and thinner than normal. Reintroduction of the instrument to the site of the posterior stricture revealed only a narrow zone, looking redder and more dusky than normal, and slightly velvety. The folds here appeared to be longitudinal. The pallor, so striking within the anterior stricture, was distinctly wanting here. From this time on, intermittent dilatation was practised at intervals of four and six days. Following the withdrawal of the steel sound, applications of 1 and 2 per cent. silver nitrate solutions were made to the stricture-areas.

Within four weeks all visible pathologic appearances at the site of the posterior stricture had disappeared, and the mucous membrane lining the anterior stricture had become redder, smoother, and apparently more supple. At the end of nine weeks the patient discontinued attendance. At this time, though the urethral mucous membrane looked normal, a No. 31 bulb still encountered slight obstruction at the site of the anterior stricture, which was not felt by a No. 30 bulb.

I did not again see this patient until June 13, 1889. Examination on that date showed the urine to be normal, with a slight excess of mucus in that voided in the first over that in the second glass, but containing no pus and no blood. The meatus admitted a No. 33 F. with a little force. A No. 30 F. passed through the hole in the triangular ligament without meeting any obstruction whatever. Endoscopic examination discovered nothing abnormal. No instrument had been passed in the meantime, and the patient observed nothing unnatural. On February 12, 1891, the patient came again to my office, at my request, for examination. Neither the bulb, the blunt steel sound, nor the endoscopic tube disclosed anything abnormal. The patient declared that no instrument had been passed by himself or any person since June 13, 1889.

A brief *résumé* of this case shows that in two years, after thorough cutting and divulsion, an annular and a linear stricture, being neglected and without other treatment, recontracted to their original size, and, on exposure, brought on acute retention, requiring hot baths and opium for its relief. First continuous and then intermittent inflammatory dilatation brought both strictures up to No. 31 F. in six weeks. Neglect of all treatment for six and a half months resulted now in a recontraction of the annular stricture from No. 31 F. to No. 18 F. (13 numbers), with apparently no recontraction of the linear stricture. Intermittent dilatation, combined with topical treatment directed to the restoration of the lining mucous membrane, practised for nine weeks, resulted in a radical cure of the stricture, demonstrated by failure to recontract in the absence of all treatment, and without the introduction of instruments to maintain the caliber, this being proved by observation extending over a space of nearly four years.

The case is an exceptional one for many obvious reasons, chief among which may be mentioned the twice-demonstrated ability for recontraction to take place in the absence of all treatment that would prevent it. The existence of a linear stricture posterior to an annular one is, I think, also exceptional, and there is a possibility that the indications of its existence were deceptive. Certain it is that the posterior stricture seemed to get well on simple dilatation, and promptly. This, however, I believe, is not exceptional in cases of linear stricture, for the reasons already set forth. Of the existence of an annular stricture, at least one-fifth of an inch in breadth, the evidence does not permit me to doubt.

That we will obtain such good results in many cases of inflammatory stricture of the annular variety I do not in the least believe. The whole question of radical cure undoubtedly depends upon our ability to restore to its normal condition the mucous membrane lining such a stricture. That a certain proportion of such strictures can be cured by combining topical treatment with that intended to do away with the purely mechanical manifestations of stricture-disease, I think this case clearly demonstrates. This method of treatment will not, I fear, become very common until patients exhibit more persistence and surgeons less of the prevailing itch for cutting. Less hopeful even than cutting, divulsion, or stretching, would, I think, be electrolysis, which, applied after the manner of the modern schools to a case like this, would be more likely to destroy than to rehabilitate the precious remainder of lining mucous membrane. To this conclusion I think we are irresistibly pushed, knowing as we do that the electrolytic action is chiefly spent upon the surface to which the electrode is directly applied, and we certainly have no evidence whatever of the power of surface-electrolysis to restore damaged mucous membranes in other parts of the body. Why should it be exhibited any more on the surface of the urethral mucous membrane than upon that of any other?

NOTE.—This paper was read before and discussed by the American Association of Genito-Urinary

Surgeons during the Congress of American Physicians and Surgeons, held at Washington, D. C., in 1891. In April, 1893, the patient, William S., again presented himself at my office, and was examined by Dr. H. McC. Johnson and myself. A No. 29 F. blunt steel sound passed without obstruction into the bladder. The urethrometer of Otis, drawn forward after being distended to No. 34 F. in the bulb, had to be gradually reduced to No. 31 F., until it approached to three and one-fifth inches of the meatus, when it could be again distended to No. 33 F. without causing distress. At this distention and position it could be rotated with the application of a little force, but had to be turned down to No. 31 F. before passing forward. In the *fossa navicularis* it could again be distended to No. 33 F. and rotated.

If the evidence of the urethrometer is to be relied upon, it would appear that at the point where the stricture originally was there is now an abnormal dilatation. It is well known that the growth and condensation of the stricture-tissue cause pressure-atrophy of the normal circum-urethral elements, and the inference seems justified that complete atrophy of the stricture-band was not, in this case, followed by their redevelopment. It was a surprise to me to find the urethra so distensible at this point, and yet this is what should have been expected, and it is an additional proof of the permanent cure of the disease. The patient promised to return for an endoscopic examination, but left the city without doing so.

209 N. GARRISON AVENUE.

ORIGINAL ADDRESS.

SYDENHAM.[1]

BY SIR HENRY ACLAND,
REGIUS PROFESSOR OF MEDICINE IN THE UNIVERSITY OF OXFORD.

IT would ill become me to detain you by a full account of the reasons for erecting a statue to Sydenham in Oxford; I might rather be called on to explain why it has not been done before. Suffice it to say that thirty-five years ago the name of Sydenham was written on yonder corbel, between John Hunter and Harvey, so that no other might there be placed. It is a pleasure to remind you that on one of the corbels, orginally suggested by the Prince Consort, some forty years ago, the statue of John Hunter, given by Her Gracious Majesty the Queen, was placed, and that on the next corbel you will unveil to-day the memorial of another great benefactor of mankind, one of an illustrious company of five selected to represent here the science and art of medicine.

On a recent public occasion your Lordship [the Marquis of Salisbury] said of medicine, with your usual force, that "it is the most sober, the most absolute, the most positive of all the sciences." Some not conversant with the facts may dispute this. An art which is based upon physics, chemistry, experimental and observed physiology, the ascertained causation of disease, its prevention as well as relief, not only for the human family, but for domestic animals in every climate, cannot be surpassed in complexity by any art or science whatever. It might seem, therefore, strange that medicine should be represented here by only five persons of all time. But the five are a sixth of the number whose statues can be erected in the court to typify all physical science, ancient and modern. And truly, the five represent a vast range of knowledge and a long history of achievement.

Sydenham, the representative practitioner among the Moderns, stands in the center. On his right is John Hunter, who, for the interpretation of disease, its causes, its prevention, its cure, searched through every form of life in the Book of Nature, existing or extinct, vegetable or animal, from their birth to their death, in their form and development and functions, and through observation, experiment, and treatment, and left a key whereby to unlock the ever-growing wonder of life through death and of death through life. On the other side of Sydenham stands Harvey, to whom it was given to solve the problem that had been unsolved from the remote period since search into the nature of man began. He made it possible to reveal some of the deepest secrets of the higher forms of life through the knowledge of fact and the destruction of unproved speculations concerning the nature of a vital principle.

These three, Hunter, Sydenham, and Harvey built on the foundation of two of the most marvellous men in the marvellous century which produced Aristotle and Hippocrates: Aristotle, the student and first interpreter of the material nature of all animal life, and the analytic and synthetic exponent of the psychic nature of man; Hippocrates, if not actually the founder of medicine as he is sometimes called, yet the first known expositor of the philosophy, the science, and practice of the great art of healing, in some ways unsurpassed even to the present day. These two, in their respective ranges of human observation and deduction, maintained a supremacy over philosophic thought during nearly two thousand years, a supremacy misunderstood and misapplied by their successors.

I may be pardoned, here in Oxford, for saying a few words on the relation of Sydenham to his eminent contemporary, John Locke. It is still a question which influenced most the mind of the other. The epoch of Locke and Sydenham, like that of Aristotle and Hippocrates, was one of the critical periods in the history of thought. Aristotle was naturalist and psychologist. Hippocrates threw his whole force, under the influence of the great minds of antiquity, into the observation and analysis of the diseases of man; their causes, consequences, treatment, and prevention. It is enough to shame the average tone of medical practitioners in the early part of this century that the scientific interest and wide political significance of comparative national health should have been made known in Athens four hundred years before Christ, by the Divine teacher of Cos.

Locke and Sydenham were not actual founders of modern systematic psychology and medicine, as were Aristotle and Hippocrates. They were, to a certain

[1] An address delivered on the occasion of the unveiling of a statue of Sydenham in the Museum of the University of Oxford, August 16, 1894.

extent, destructive critics of mistaken dogmas. They brought the exponents and students of mental and medical science back to observation and its conclusions, and removed them from speculations without data, and from misinterpreted authority. The merit of both lay in this, they rejected abstract assumptions and definitions not based on observed fact, and thus Locke made perhaps the greatest change in mental philosophy since the days of Plato, and Sydenham the greatest in medicine since the days of Hippocrates.

Locke and Sydenham were both students and practitioners in medicine at Oxford about the same time; each entertained for the other the highest respect and admiration. They studied man from different points of view, and each with a deep sense that they should so direct their experiments and observations that "Science . . . may grow day by day more clear and more efficient." "In this way the human race," said Sydenham, "may reap the advantages thereof generally and with safety, even after they themselves have been laid in their graves."

It would be impossible on this occasion to describe in full the condition in which Sydenham left practical medicine at his death, in 1689, or to discuss the merits of his own procedure in detail. Like those great men whose contemporary he was, Boyle, Newton, Locke, he was observer and interpreter of Nature, observer of fact under every condition of being and of change, interpreter so far as the knowledge and means of his age made interpretation possible. Confident in the rightness of his method, he dedicates in a careful paper his observations on the history and cure of acute disease to Robert Boyle, and receives himself a Latin poem on the occasion from Locke. He thanks Boyle, for "in the fulness of your humanity you have gone so far as to accompany me in visiting the sick." This method of observation and experiment, searching, scientific, according to the progressive means, methods, and gifts of the age, is now accepted as the basis, the only basis of therapeutics.

It remains to be added that Sydenham looked on his profession, dealing with the sufferings of mankind, as a solemn trust from God. This temper appears and reappears. "Since it is the will of God," he writes, "the Supreme Arbiter and Regulator of all things, that the human frame be, by nature, adapted to the reception of impressions from without, it follows that it must be liable to a variety of maladies." In the preface to his great work on acute diseases, he says: "Whoever takes up medicine should seriously consider the following points: First, that he must one day render to the Supreme Judge an account of the lives of those sick men who have been intrusted to his care. Secondly, that such skill and science as, by the blessing of Almighty God, he has attained, are to be specially directed toward the honor of his Maker and the welfare of his fellow-creatures, since it is a base thing for the great gifts of heaven to become the servants of avarice or ambition. Thirdly, he must remember that it is no mean and ignoble animal that he deals with. We may ascertain the worth of the human race, since for its sake God's only-begotten Son became man, and thereby ennobled the nature that He took upon Him. Lastly, he must remember that he himself hath no exemption from the common lot, but that he is bound by the same laws of mortality, and liable to the same ailments and afflictions with his fellows. For these and the like reasons let him strive to render aid to the distressed with greater care, with the kindlier spirit, and with the stronger fellow-feeling. In all cases it behooves each and all of those physicians who have the desire not only to *seem* but to *be* prudent and honest, to acknowledge and entreat the Divine goodness that from this they may look for wisdom and good fortune; and they ought not to be satisfied with simply giving health to the sick, but they should strive to add greater certainty to the art that they administer; and they should so direct their experiments that the science of medicine may grow day by day more clear and more efficient. In this way the human race may reap the advantages thereof generally and with safety, even after they themselves had been laid in their graves."

After these pregnant words I may be allowed briefly to notice the broad lessons we may learn even in our day of unprecedented research and knowledge—from Aristotle, Hunter, and Harvey, from Hippocrates and Sydenham, concerning the aims, methods, duties, and character of modern medicine. The modern attitude and scope of combined medical science and practice have one thing in common with the times of Sydenham and of Hippocrates, viz., the personal life and character of the true physician. These are unaltered and unalterable while the human race remains. We have all seen men in this respect like Hippocrates and Sydenham in our own day. I will name three physicians of England, of Scotland, and of Ireland —Latham, Alison, and Stokes—they were physicians typical as educated, scientific, gifted, practical observers—lovers of men and lovers of God, they all possessed eminently the qualities which are found in various degrees of perfection or imperfection in every age and every country, in every city and in every village where a skilful and beloved physician is found.

Hear the words of Latham addressing the students of St. Bartholomew's Hospital, within our memory: "Diseases are not abstractions; they are modes of acting, different from the natural and healthy modes—modes of disorganizing, modes of suffering, and modes of dying; and there must be a living, moving, sentient body for all this. This body must be your study, and your continual care—your active, willing, earnest care. Nothing must make you shrink from it. In its weakness and infirmities, in the dishonors of its corruption, you must still value it—still stay by it—to mark its hunger and thirst, its sleeping and waking, its heat and its cold; to learn its complaints to register its groans. And is it possible to feel an interest in all this? Ay, indeed it is; a greater, far greater, interest than ever painter or sculptor took in the form and beauties of its health. Whence comes this interview? At first, perhaps, it seldom comes naturally; a mere sense of duty must engender it; and for a while a mere sense of duty must keep it alive. Presently, the quick, curious, restless spirit of science enlivens it; then it becomes an excitement, and then a pleasure, and then the deliberate choice of mind. When the interest of attending the sick has reached this point, there arises from it, or has already arisen, a ready discernment of diseases, and a

skill in the use of remedies. And the skill may exalt the interest, and the interest may improve the skill, until in process of time experience forms the consummate practitioner. But does the interest of attending the sick necessarily stop here? The question may seem strange. If it has led to the readiest discernment and the highest skill, and formed the consummate practitioner, why need it go further? But what if humanity shall warm it? Then this interest, this excitement, this intellectual pleasure, is exalted into a principle, and invested with a moral motive and passes into the heart. What if it be carried still further? What if religion should animate it? Why, then happy indeed is that man whose mind, whose moral nature, and whose spiritual being are all harmoniously engaged in the daily business of his life; with whom the same act has become his own happiness, a dispensation of mercy to his fellow-creatures, and a worship of God."

The conception of preventing disease existed in the mind of Hippocrates in the widest sense, leading him into social, ethnologic, political, philosophic inquiries as to the material and moral cause of mental and bodily weakness in individuals and in nations, comparing the intellectual and physical conditions of Greeks and Persians, and tracing the various causes of their difference. The prevention of disease has become, in the memory of many now living, a part of the most ordinary routine of medical inquiry and practice, and is studied throughout the whole world. The care of the public health involves now complex inquiries into vital statistics, questions of districts and areas, social problems, engineering, meteorology, and geology, and the real but not the fanciful requirements for family life, whether in country or town. It is remarkable how much of this was foreseen by both Hippocrates and Sydenham.

Processes and modes of minute investigations into conditions normal and abnormal throughout all living beings, grasped by only a few half a century ago, have become parts of the earliest studies of every one entering the profession of medicine. Now they lay the foundations for the observation of facts in every state of health and of non-health in all living beings and for all clinical and therapeutic conclusions. But the temper and yearning of Aristotle, Hunter, Harvey, Hippocrates, and Sydenham must animate all, and amid the various phases of physiologic and pathologic progress may they be ever found in your Lordship's ancient University.

Oxford has bred many such examples besides Sydenham, Willis, Locke, Boyle. May she give to the world many, many more! May she continue to develop all the means she possesses for this blessed work, leaving to the resources of larger populations, in the Metropolis, in Edinburgh, in Glasgow, in Manchester and Birmingham, and of the great foreign cities where the care of thorough clinical instruction for which Oxford has not and cannot at present have the means of providing.

We ought, however, to be able to show here to our scientific students, without distracting them from their scientific work, the nature and extent of modern medicine. They may study the general principles of construction and administration of hospitals, the care of the sick poor in their own homes, by means of the staff of our large provident dispensary and of our trained district-nurses. They may and do now examine our village and rural populations, our extensive drainage-works, with our sewage-farm, and the works for the water-supply of our city. The development of each of these has opened a field for instruction not even dreamt of a few years since. Considerable knowledge of all these can be easily obtained by intelligent youths during the period of their general and scientific education in Oxford. What an enlargement of their sympathies and breadth of view before they enter on the vast field of clinical observation in the great voluntary or State hospitals now open to students.

As to the advance of actual and applied knowledge through scientific physiology and pathology since Sydenham's day, and as to the prospects of the near future of medicine through all races and conditions of men, by means of the great congresses of public health gathered from all parts of the world, this is not the time, even if I were able, for me to speak. It cannot be doubted that the recent development of knowledge of the causes, nature, and prevention of disease through the study of living animals and by bacterial research may produce ere long as great a change in the prevention of many diseases as Jenner in the last century produced for one. Though this may be the most astonishing result of the medicine of the nineteenth century, in relation to all the races of mankind, it is not the only result which in the twentieth century may be made known to man.

I beg your Lordship to accept this statue for Oxford, and so to keep ever alive before the future students of medicine examples of Hippocrates, Harvey, and Hunter, of Aristotle and Sydenham, and the many true and noble natures to be found in the annals of every civilized nation of the world.

CLINICAL LECTURE.

CONGENITAL DISLOCATION OF THE HIP.[1]

BY ROSWELL PARK, A.M., M.D.,
PROFESSOR OF SURGERY, UNIVERSITY OF BUFFALO.

HERE are two little girls, aged respectively eight and eleven, who both have apparently some spinal curvature. Even through the clothing the abnormal gait and the deformity of the spine are noticeable. In the case of the older child the deformity is symmetrical, whereas the younger one shows a one-sided deviation.

Let us examine the older child more carefully. The gait is a peculiar sidling one, as if the hips yielded somewhat at each step. The hips project backward, giving the buttocks a strange appearance. There is an abrupt lumbo-dorsal angle in the spine, and the abdomen is correspondingly protuberant. With all this deformity, which has been noticed since early infancy, the child complains of no pain and of but little fatigue in walking.

The case presents the typical picture of bilateral congenital dislocation of the hips. Let me show you that the spinal curvature is only apparent, in order to compensate for the false position of the femora on the pel-

[1] Delivered at Buffalo General Hospital.

vis. By placing the girl flat on her back the deformity disappears. I will take some measurements while an assistant steadies the pelvis. Nélaton's line is drawn from the tuberosity of the ischium, around the hip to the anterior superior spine of the ilium. Normally, the tip of the trochanter is just beneath this line, but here the trochanter is an inch and a half above it, as traced with the dermograph. There is about the same displacement on the other side. By flexing and rotating the thighs, and pushing up and down, the trochanter moves more freely than it should, indicating that the capsules are relaxed.

The younger child, a sister of the other, presents essentially the same condition, except that it is located on one side. The compensatory deformity of the spine here is not so much an anterior curvature as it is rotation. The gait is, therefore, like that of a person with one leg shorter than the other. On drawing Nélaton's line I need not mark the position of the trochanter, as the child is so thin. It is about an inch and three-quarters above the line. On the other side its position is normal. The capsule is even more relaxed than in her sister's case.

It is rather a remarkable coincidence that these two cases should occur in sisters. There is no family history of such trouble, and there are other children of the same parents who are not similarly affected.

The question of operation is a matter to be very carefully considered. I should rather operate on the child that has the trouble on one side, for there would be only half the shock, and she is younger and more amenable to treatment. But I am not in favor of operating, even in the latter case. A cork sole under the foot of the affected side would correct the gait somewhat, although it would not relieve the condition of the hip. The older sister, of course, could not be helped in any such way, and apparatus designed to hold the hips in better position is irksome and cumbersome, and I am not much inclined to advise any interference.

This next child I have brought before you to illustrate the result of operation for congenital dislocation of the hip. The child was placed absolutely in my hands, to be dealt with as seemed best to me. About three months ago I did the new operation devised by Prof. Hoffa, of Würzburg, and reported by him at the Congress of German Surgeons in 1890. It consists in cutting down upon the head of the bone, loosening it from all connections and adhesions, including the muscular insertions about the neck, and then in cutting still further, and making a new socket for the head of the femur at the point where it ought to be. The innominate bone is reamed out if necessary. The parts are then sewed about the head of the femur, and an apparatus is used to hold the femur in its proper position until a new socket shall have formed. The operation is simple in theory, but difficult in performance, and its success has not yet been fully demonstrated. Prof. Hoffa told me personally that he was getting very encouraging results. I represented to the parents of this child that such reports had been made to me, and told them that I was willing to carry out the operation if they were willing to abide with the result.

The child rallied well from the operation, and the wound healed without delay. Now, the head of the bone is in its proper position, but it can still be pushed up into its old position, so that the child is wearing a hip-joint splint, by which she is enabled to walk, the weight of the body being borne, not so much by the outer rod of the splint as by a distinct attachment, a perineal support. The apparatus, which is a modification of my own device, has been on for only two days, and I shall advise that the child be not allowed to walk for many months. The splint consists of a long brace, with a joint opposite the hip and one opposite the knee, which is at present locked, but which can be loosened later, so as to permit the leg to be bent; a broad support behind the thigh connected with the metallic rod; and a perineal crutch, which can be removed at any time. When the apparatus is in place the weight of the body is transmitted through the crutch and metallic cross-piece to a brace underneath the foot. Like any ordinary hip-joint apparatus, this is held in place by a pelvic girdle, and has an arrangement for lengthening the outer bar as the child grows. Below, it is held in place by adhesive strips applied to the leg. At the upper end of the long rod I have had a pad made opposite the great trochanter, and intended to hold it down to its proper position. This is not a feature of the ordinary hip-joint splint.

I have, of course, labored under the disadvantage of never having seen the operation done by its originator, having learned of it only through the reports of cases and my conversation with Dr. Hoffa. There is good motion in the hip, and the child can herself kick up her leg. In fact, there is a little too free motion, and this retentive apparatus has been put on to keep the limb quiet for a number of months. It will be at least a year and a half or two years before the value of the interference can be judged. I have certainly not made the child any worse, and the hip, though not available for active use at present, is in its normal location. [Eight months after the operation the child's condition was satisfactory.]

I have shown you these three cases for their clinical interest and their instructiveness in the matter of diagnosis. Aside from the question of treatment, the diagnosis being easy, the condition is one of peculiar interest to the surgeon on account of its etiology. The very fact that many different hypotheses have been offered by different writers at different times indicates that the explanation is shrouded in difficulty. I think, however, that it is correct to maintain that all cases are not due to the same cause or causes, and that at various times various anatomical conditions operate to bring about the clinical result so well illustrated here to-day. Let me briefly run over the principal hypotheses that have been advanced in explanation of the condition, and which I have tabulated in this schema upon the blackboard. This is essentially the classification of Krönlein, who has studied the matter most carefully:

1. Causes traumatic by
   - *a*. External violence, as by a fall during pregnancy or by violent uterine contraction.
   - *b*. Injury during birth, particularly in breech-presentations.
2. Causes spontaneous, due to
   - *a*. Laxity and deficiency of ligaments.
   - *b*. Fetal hydrarthrosis, or perhaps even fungous degeneration of the joint, with effusion or possibly caries.

3. Causes involving peculiar positions of the lower limbs *in utero*:

a. By strong flexion of the thighs, with weakness of the cotyloid ligaments.

b. By pressure of the abdominal walls, the amniotic fluid being deficient, so as to cause undue adduction of the thighs.

4. Muscular contraction, due to some central nervous lesion in the fetus.

5. Paralysis of the peri-trochanteric muscles.

6. Arrested development.

This last is the most common cause, and is based on what is known as Ammen's theory. It has of late years received confirmation from the researches of many others. It rests upon a solid scientific basis, and, so far as museum-specimens go, is certainly the most common cause of the condition. It has been the cause of all the cases the specimens from which I have had the opportunity of examining. The anatomic defect may consist in premature ossification of the Y cartilage at the bottom of the acetabulum, or, more often, in a retarded growth of this cartilage and failure on the part of the three segments forming the acetabulum to properly develop. Another manifestation of this same arrest of development may be seen in malformation of the rim of the acetabulum, which may be almost or even entirely lacking. As a matter of fact, any developmental failure will permit and favor displacement of the femur. This theory is also favored by the fact that congenital dislocation of the hip is often associated with other congenital malformations, sometimes of serious degree. I have not been able to discover such an association in any of the three cases shown you to-day, but the clinical history of many other cases illustrates this general tendency. It should be added that, while the malformation at the hip is usually confined to the acetabulum, there may also be cases in which the head and neck of the femur are imperfectly developed, and essentially the same result is brought about.

By all means the most common form of dislocation is upward and backward on the dorsum of the ilium. It is this form that gives the instantly recognized deformity and the characteristic gait observed in these cases. Congenital dislocation forward upon the pubes, and even downward into the obturator foramen, has been described, but is exceedingly rare. The *ligamentum teres* is usually lacking. When present it is commonly enlarged and thickened, and put on the stretch, as it necessarily must be in supporting the weight of the body. Ordinarily the capsule is entire, but by attrition and wear and tear, it may become atrophied, and at least the upper part may almost completely disappear. Sometimes it also is thickened, and it may be constricted at the middle into an hour-glass form. Occasionally there develops a new rim on the upper margin of the false acetabulum.

Standing as these patients must stand, the pelvis is in large measure suspended by whatever is left of the capsular ligament and the *ligamentum teres*. The trunk above is tilted, as the center of gravity of the pelvis and of the lower part of the trunk is thrown forward. There is a compensatory throwing back of the upper part of the body, in order to maintain the erect posture. This accounts for the peculiar curve of the spine so characteristic, as well as the rotation of the spine that marks cases of unilateral dislocation. It often happens that this enforced lordosis is mistaken for the primary condition, instead of being recognized as purely secondary and compensatory. Another tendency is toward abnormal development of the pubes, the anterior portions of the ilia being made to approach each other gradually, while the ischial tuberosities separate. Thus the entire pelvis becomes misshapen. Fortunately, the ilium seldom becomes too thin to justify the excavation of a new socket when operation is otherwise indicated.

Should you ever be in doubt as to diagnosis in a case of suspected congenital dislocation of the hip, it is a simple measure to place the patient on the back and manipulate the thigh, when it will be found that the trochanter can be put through an excursion upward and downward, and often forward and backward, to a degree never permitted in the normal condition.

So far as prognosis is concerned, these cases seldom become worse and seldom better when left alone. The gait, however, becomes more characteristic, and while walking appears very difficult, it really is not painful, scarcely even tedious to the patient, except that it is necessarily slow. There is a street-sweeper in this city, a middle-aged man, dwarfed in stature, who has this condition extremely well marked. He works as hard as any of his fellows, but he is so clumsy in his motions that I often wonder that he has not been run over and maimed or killed long before this.

As the gait becomes more conspicuous with advanced life the lordosis increases to a certain degree, beyond which it does not advance. This condition, not being an active disease of the spine, is painless, and in fact the suffering connected with congenital dislocation of the hip is almost purely mental.

Naturally the very important question arises as to what can be done for relief. It is fair to suppose that if the condition is recognized when the infant first begins to walk—or if possible earlier still—and the child be kept in bed, with slight traction on the limbs, there would develop in course of time substitutes for the natural acetabula which would fulfil their purpose more or less satisfactorily. Unfortunately, children thus deformed are seldom seen by the surgeon at an age when this simple treatment would be of avail. Unfortunately, too, it is hard to secure the intelligent coöperation of parents and to inculcate lessons of sufficient patience. Were you to ask me how long to keep such an infant in bed, I could not give you any definite rule; but I should say at least two, perhaps three years. You well know how few parents will consent to enforced confinement of an otherwise healthy child for such a length of time, partly from mistaken motives of kindness and partly from the disinclination to assume the care which would necessarily devolve upon themselves.

If the dislocation be unilateral and be taken in hand early it will be quite possible to carry out the same principle of long-continued extension by means of a hip-joint brace. As between some such simple measure as this and the radical method resorted to in the first case shown you, the choice is seldom presented. The radical operation has been performed thus far by but few surgeons. The general opinion of those who have tried it is rather favorable. The patients, however, must be carefully

selected. The puny, squalid child is not a suitable case for any serious operation; nor is the one whose parents cannot give it the proper care, or for which accommodation in some suitable institution cannot be secured. Again, these cases should be taken at the earliest possible moment, and until I have more reason to advise it than I have at present, I should scarcely recommend operation in children over three or four years of age.

In the case of the two sisters just before you I have told the mother essentially this: that I could give her practically no hope in the case of the older child with the double lesion, but that in the case of the younger child, I thought the condition would justify operation; that this would probably do no harm, even if no good were accomplished, and that the prospect was fair for perceptible improvement, providing she could afford the necessary time and attention. The poorer class of people, to whom she belongs, must necessarily consult expense in these matters. She lives at a distance, and I am not willing to take the responsibility of the operation unless she can leave the child here as long as may seem best. She must also see her way clear to provide the necessary apparatus at the conclusion of my operative treatment, and this will entail an expense of $40 or $50. It is a great pity that financial considerations have weight in deciding what to do in any surgical case, but as you have more than once seen in this clinic, they sometimes form a very important factor, even when professional services are given gratuitously.

I think I may conclude what I have to say to you this morning by advising you always to represent to parents or responsible friends of a patient, as I have done in this case, that such an operation as is under consideration here is an experiment—a scientific and perfectly justifiable experiment, but nevertheless an experiment. It is such an experiment as I should not hesitate to have tried on any member of my own family under proper circumstances, but I would be quite unwilling to undertake it upon this little patient or any other unless the guardians of the child were satisfied to regard it in that light.

CLINICAL MEMORANDA.

MYELOMA: REPORT OF A CASE.[1]

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Occasionally the bone-marrow becomes the seat of primarily multiple lymphomatous tumors, which are usually associated with grave anemic conditions. These tumors are described quite fully by Klebs[2] in connection with lymphoma under the special designation of myeloma (*Myelom*). They are, in other words, medullary lymphomas, lymphomatous tumors occurring apparently as primarily multiple growths in the medulla of bones.

The term myeloma can hardly be said to have acquired this special significance in American medical literature, and the various dictionaries define it as a tumor of bone-marrow, or as synonymous with encephaloid. Dock employs the term myeloma freely in his classic article on "Chloroma and its Relation to Leukemia."[1] In describing an illustrative case we have concluded to use the term myeloma in the restricted sense just alluded to, because the word is not associated so closely with any other growth or condition as to result in confusion.

According to Klebs,[2] v. Rustizky[3] was the first to describe as a peculiar form of neoplasm the primarily multiple tumors of bone-marrow. That the primary multiplicity of these medullary tumors is characteristic of myeloma has been established by all subsequent observations,[4] none of which disclosed a tumor of sufficient size and development to merit the distinction of being regarded as the primary focus; it must also be borne in mind that the tumors occur essentially in the bone-marrow, while growths in other organs are only occasional.

Microscopically the tumors consist of unusually wide blood-spaces without any definite walls, located in diffuse areas of round, lymphoid cells, with large nuclei rich in chromatin, dispersed in a wide-meshed, finely fibrillated, delicate network of connective tissue.[5]

Myelomas cause a bulging of the bone in which they occur; often the growth breaks through the compact layer and infiltrates the periosteum and the para-periosteal and peri-periosteal tissues. In this respect they differ from leukemic lymphomas in bone-marrow; neither is the histologic structure identical.

Klebs has seen the rapid development of myeloma follow what he calls typical, pernicious flagellate anemias, and speaks of their anemic basis as quite well demonstrated.

On account of the many shortcomings in the observations of the case about to be recorded, we do not feel at liberty to analyze the various cases in the literature with a view to establishing somewhat more definitely the nature of these growths and their relation to lymphoma, pernicious anemia, and leukemia, but there are a few instances of those described that bear such a marked resemblance to ours, and at the same time indicate a distinct relation to blood-diseases, that brief references to them may perhaps be allowed.

Nothnagel[6] describes *in extenso*, under the title *lymphadenia ossium*, an interesting case, the main points of which may be detailed as follows:

A twenty-four-year-old man suffered for a year and a half from attacks of severe pain in the sternum, the abdomen, and the long bones. There were periods of fever of exquisitely intermittent character, often of a distinct tertian type; there was progressive emaciation; no malarial parasites were found in the blood, and after inoculations from the blood, culture-media remained sterile; there was swelling of the sternum and of the extremities. The blood-examination showed the hemo-

[1] Presented, with specimens, to the Chicago Pathological Society, March 12, 1894.

[2] Allgemeine pathologische Morphologie, 1889, p. 671 et seq.

[1] Amer. Journ. Med. Sci., 1893.

[2] Loc. cit. [3] Deutsche Zeitschrift für Chirurgie, Bd. iii, p. 162.

[4] Zahn, Deutsche Zeitschrift für Chirurgie, 1885, Bd. xxii; Waldstein, Virchow's Archiv, Bd. xci, p. 10; Grawitz, ibid., Bd. lxxvi, p. 353; Nothnagel, Festschrift R. Virchow, 1891, Bd. ii; Wien. med Blätter, 1892, xv, pp. 149 and 165, also in Medical Press and Circular, London, lii, p. 671, and liii, p. 5; Coates, Glasgow Med. Journal, xxxvi, p. 420; Kohler, Prager medicin. Wochenschrift, 1889, No. 4.

[5] Klebs: Loc. cit. [6] Loc. cit.

globin-estimation to be 30 per cent, and 1,824,000 red corpuscles to the c.mm., with poikilocytosis, the presence of nucleated red cells, some leukocytosis, the polynuclear leukocytes, with neutrophilic granulations, being especially increased; there were also many lymphocytes, a few eosinophiles, and a few large mononuclear leukocytes with homogeneous plasma. The hemoglobin fell to 24 per cent. before death. The post-mortem examination showed the pelvis, the spine, the scapulæ, the clavicles, the sternum, and the ribs, as well as all the long bones, and some of the bones in the hands and the feet, to contain microscopically characteristic lymphomatous masses, *i. e.*, myelomas.

Coates[1] describes, under the title "multiple sarcoma of bone," an instance of myeloma in a forty-three-year-old man, in whom a sternal swelling had existed for five years. The whole of the sternum was replaced by tissue composed of round, polygonal cells; the first and second ribs on the left side were involved, and all the other ribs down to the fifth were loosened; there were a number of spindle-shaped swellings elsewhere on the ribs, and the whole vertebral column, except the upper two and the lower two vertebræ, was affected to the extent that the bodies of the vertebræ were replaced by tumor-tissue; there were masses in the humerus and in the left femur also.

Grawitz,[2] in an article entitled "Maligne Osteomyelitis und sarcomatöse Erkrankungen des Knochensystems als Befunde bei Fällen von perniciöser Anämie," details a case of anemia following typhoid fever, in which round-celled sarcomatous tumors developed in the cranium, the vertebræ, the femora, the humeri, the bones of the legs, the right clavicle, the ribs, and the sternum; there were also tumors in the liver, the right adrenal, and a disseminated involvement of the peritoneum.

Kahler[3] describes, under the title "Zur Symptomatologie des multiplen Myeloms," the case of a physician, forty-six years old, who was under observation for eight years. Severe pain in the upper region of the chest marked the onset of the disease. Attacks of pain, at times osteoscopic, at times in the course of various superficial nerves, at times visceral, were frequent during the course of the malady. Flattened, elevated masses appeared on the surface of the bones, particularly the ribs; at the end of six years there was marked kyphosis in the upper dorsal region. The inguinal glands very slowly enlarged during the last year, and finally a spontaneous fracture of the upper dorsal vertebra occurred. The autopsy, which was unavoidably incomplete, revealed the fracture referred to, a large splenic tumor, great fragility of many of the ribs, with partial disappearance of their cortical substance; and upon microscopic examination extensive osteoporosis, dependent upon the multiple development of a tissue with the characteristics of round-cell sarcoma.

Kahler calls attention to the bone-pains and bone-swellings, the limitation of the affection to the bones of the trunk, the absence of marked flexibility of the bones, and the final appearance of the tumors and of the enlargement of the lymphatic glands, as features enabling the differential diagnosis to be made between myeloma and osteomalacia. He regards albumosuria, which was present in this case, as a frequent symptom of multiple myeloma. Huppert[1] has described the urine of this case under the title "Ein Fall von Albumosurie."

[1] Loc. cit. [2] Loc. cit. [3] Loc. cit.

The following is the clinical history of our case:

Mrs. A. C., a Bohemian, forty years of age, was admitted to Ward 8 of the Cook County Hospital, March 22, 1892. The family history was negative. Menstruation, which still continued, had begun at the age of sixteen and had been regular and painless, though scanty of late. Four healthy children had been born after normal pregnancies and short, easy labors. There had been no miscarriage. No history of syphilitic taint, hereditary or acquired, could be elicited. The woman had enjoyed good health up to thirteen months prior to entering the hospital, with the exception of an attack of rheumatism several years ago.

In December, 1890, and in January, 1891, the woman had suffered from pain in the lumbar region and over the lower vertebræ and the sacrum. In February, 1891, she noticeed a small nodule over the lower end of the sternum. This was not at all painful, and enlarged so slowly as not to excite her alarm. But soon other swellings appeared on the face and chest, and her strength began to fail. Some of the nodules she thought had disappeared after being visible for a time. In January, 1892, she began to cough.

On admission in March, 1892, the following points were noted: The patient was much emaciated and very pale. There was edema of both upper eyelids, with slight pitting on pressure over the tibiæ. Several nodules were seen over the anterior chest-wall, the largest about the size of a hickory-nut, fairly firm, painless, slightly tender on pressure, and located at the junction of the ribs with the costal cartilages and of the latter with the sternum. There was some diminution in resonance, with loss of intensity of the respiratory sounds, over the bases of the lungs, and large and small moist râles could be heard over all parts of the chest both on inspiration and expiration. The examination of the heart was negative, as was that of the abdomen, save that deep palpation in the lumbar region caused some pain. The mental condition was good; the pupils were equal, regular, reacting to light and in accommodation. No paralysis or disturbance of sensation in any part of the body could be found. The urine was examined on March 25th, and the report showed twenty-eight ounces for twenty-four hours, the color yellow, the specific gravity 1020; albumin was present, 33 per cent. by volume; there was an abundance of leukocytes, and granular hyaline casts. The temperature at the hour of admission was 100° F.; the pulse 132, the respirations 42

A few days after admission a nodule appeared on the forehead just above the base of the nose. This remained prominent for a few days, and then gradually disappeared. At this time the patient was taking mercury and increasing doses of potassium iodid.

During the fifteen weeks' stay in the hospital there was never an elevation of temperature above 101°. For days at a time the thermometer registered between 97° and 99°. Twice the record shows 101° and five times 100°. The pulse varied from 90 to 140, occasionally being intermittent. Respiration was always a little rapid and at times labored.

Omitting details of several records which relate especially to progressive emaciation and weakness of the patient and to the description of new nodules as they appeared, we quote from the record of June 29th, at which time the following notes were made:

The emaciation was extreme and the patient very weak. The thigh could be encircled with a single hand.

[1] Prager medicin. Wochenschrift, 1889, No. 4.

The mental condition was fairly good, and patient spoke hopefully of her eventual recovery. The cervical, inguinal, and axillary glands were moderately and painlessly enlarged. The heart-sounds showed no murmurs; the second sound was accentuated; and there was no evidence of cardiac enlargement. Over either chest below the angle of the scapula there was dulness, with loss of vocal fremitus, and distant bronchial breathing. Near the upper limit of the dulness, bronchial breathing was marked and the vesicular element was detectable. Coarse and fine moist râles were present as at the first examination. There was abundant muco-purulent expectoration. Anteriorly there was resonance, in places hyper-resonance. The dulness on the right side extended from the sixth rib in the mammillary line to a point one inch below the costal arch. The smooth edge of the liver was palpable at this point. Palpation of the ribs showed no bony defects, but some of the ribs, *e. g.*, the third rib on the right side, yielded so readily under pressure as to make one extremely cautious in examining, lest a fracture should be produced. The edema of the left upper eyelid, which had always been much more marked than that of the right, still persisted. The pupils were apparently normal.

The nodular enlargements were located as follows: Over the center of the forehead, where there had previously been a node, could be felt beneath the freely movable skin a roughening of the bone. Above this was a small nodule. Just above and behind the right external canthus was an elastic swelling, over which enlarged veins showed distinctly. Over the left malar prominence was a nodule, walnut-sized, not tender, and seemingly quite firmly attached to the bone. The right clavicle at its middle was enlarged, and here there could be detected a new point of motion and crepitus. There had been no traumatic cause for this fracture. At the junction of the ribs with the cartilages, and of these with the sternum, were nodular enlargements, firm, not sensitive to pressure, varying from a size just perceptible up to the size of a large walnut. Over the inferior angle of the left scapula was a nodule. The seventh cervical vertebra was unusually prominent, and in the mid-dorsal region the spinous process showed what seemed to be a nodule. Over the inner condyle of either humerus were nodes interfering somewhat with complete flexion of the arm. There was another on the posterior border of the lower half of the left humerus. No distinct crackling sound could be made out.

The blood-count showed the relation between the colorless and the red corpuscles about normal, 1 to 350. There were 2,800,000 red corpuscles to the cubic millimeter, the percentage of hemoglobin, estimated by Fleischl's hemometer, being 45. Unfortunately, no stained specimens were made.

During the night of July 1st the patient was delirious. She died, apparently from exhaustion, at 5 P.M., July 3d. During the course of her illness she urinated quite frequently, and there was a slight tendency to diarrhea. The latter may have been due, in a measure at least, to drugs.

The clinical diagnosis was: Multiple sarcoma, involving the bones of the upper portion of the body; hydrothorax; probable intra-thoracic tumors; chronic bronchitis; chronic nephritis.

It is but justice to Dr. Christian Fenger to add that he made an ante-mortem diagnosis of myeloma.

The anatomic diagnosis was: Multiple tumors in the sternum, the ribs, the spine, the right clavicle, the left humerus, the right humerus, the left malar bone, the skull; invasion of the adjacent soft tissues and of the dura; tumors in the ovaries; fibrous perisplenitis; chronic nephritis, hydrothorax, and chronic bronchitis.

Inspection.—There was marked emaciation and whiteness. On the left cheek, on the forehead near the margin of the hair, on the inner surface of the left elbow, on the central part of the right clavicle, upon the sternum, and along the costo-chondral junctions, as well as elsewhere upon the ribs, were found subcutaneous nodules and

Photograph showing location of tumors.

masses having the following characteristics in common: They were elastic, flattened or oval, not connected with the skin, but apparently attached to the underlying bones; the skin was movable and free from any signs of inflammation; the clavicle and some of the ribs were freely flexible at the site of the masses; the size was variable, from that of a hazel-nut to that of a hen's egg, and those over the breastbone, the clavicle, and the cheeks were the largest. The skull felt rough about, and especially above, the areas in the forehead.

Internal Examination.—On making the usual long anterior incision and reflecting the soft parts, many of the masses over the sternum were cut through. They were reddish-gray on the section-surface. The sternum and the cartilages were removed by means of sawing some distance beyond the costo-chondral junctions. The peritoneum was empty and smooth. The pleuræ contained much reddish fluid. The heart was normal in size; there were no endocardial changes; the myocardium was quite firm, but there were a number of yellow areas present which gave the endocardial lining of the ventricles a speckled appearance. Both lungs floated and crepitated; the lower lobes were rather heavy and contained considerable dark-red blood; on pressure mucopus oozed from the cut bronchi. The spleen was adherent to the diaphragm; it measured 13 by 8 by 2.5 cm.; the cut surface seemed normal. The kidneys measured 11 by 6 by 2.5 cm.; the capsules were somewhat adherent, and there were many cortical cysts; the cortex was 5 mm. in thickness, and its markings were rather indistinct, there being many streaks and areas of yellow. Both ovaries contained a few small tumor-areas of reddish color and firm consistence; these areas were irregular in shape and size. The liver measured 28 by 21 by 7 cm.; and it was firm. The central area of the lobules was dark-red in color, the periphery being yellow. The gall-bladder, the stomach, and the intestines did not present any changes. The brain also was normal and the dura will be described in connection with the bones of the skull.

The bones. Both the external and internal surfaces of the sternum were irregular and covered with tumor-masses, which extended into the adjacent tissues so deeply that in some places the tumor-tissue was cut through in removing the bone; the mediastinum was

not deeply involved, however, and there were no nodules that occurred independently of the sternum. The entire sternum was thickened, most so in the upper part, where it measured from 4 to 5 cm. in thickness. The sternum was also soft and flexible, and in many places the entire bone-tissue was replaced by soft, reddish-yellow masses, while in other places it seemed distended by similar masses growing from the medullary part, so that the compact tissue was shell-like and thin, and over these points there was parchment-crackling or craquement on rather slight pressure. On dividing the breastbone vertically with a saw, the entire interior was found filled with a soft, reddish-gray or yellow vascular tissue, that distended the bone into a shell, and this was again penetrated freely and apparently *ad libitum* by the new tissue, which had accumulated underneath the periosteum, as well as spread out into the peri-periosteal structures; the junction between the first and second pieces was bony, and there were also spiculæ of bone here and there in the neoplastic masses. The bony shell was thickest near the lower end, but the entire sternum was much expanded by the new growth in its interior.

The ribs contained a large number of similar tumors, which projected underneath the pleura as well as outward; the pleura had not been penetrated at any point, but externally the periosteum had been ruptured in many places, and the new tissue had spread out into the adjacent structures. The nodules upon the ribs varied much in size, were usually oblong or oval, peculiarly elastic on palpation, and of reddish-gray color. There were two points of selection, apparently, as regards location, namely, along the costo-chondral junction and at the spinal attachment of the ribs; in front this produced an appearance not unlike the so-called rosary of rickets. On the left side there was a rather diffuse, flat swelling, involving the third, fourth, and fifth ribs, near the sternum, and the soft tissues between them. In many places the ribs bent readily without crackling; in other places the bone had been distended into fusiform shells that broke easily. There were no nodules involving the costal cartilages that did not at the same time remain connected with the ribs or the sternum.

Along the costo-vertebral articulations was a diffuse growth of new tissue which in some places involved the bodies of the vertebræ; removal of two of the dorsal vertebræ showed that the bodies had been largely replaced by soft tissues which, while allowing the bodies to retain their normal shape, had grown out into the surrounding soft parts. The central third of the right clavicle was expanded into a large, fusiform mass, through the middle of which the bone was completely absorbed, so that the clavicle consequently bent readily; this mass measured 15 cm. in diameter.

Large nodular masses were also observed upon the inner surface of the left humerus near the elbow-joint and upon the outer aspect of the head of the right humerus, but these were not incised for cosmetic reasons, as the permission to examine the body was not without restrictions. For the same reasons the large mass over the left malar bone was not incised. The character of these masses, as far as it was possible to make it out, has been detailed under the general description of the external appearance. No masses were found upon the bones of the pelvis or of the lower extremities, but no internal examination of these bones was made.

The skull presented the following peculiar appearance: Underneath the scalp in the frontal and fronto-parietal regions were irregular fungoid masses creeping out of the bone; the masses were of all sizes up to that of a silver quarter, and they were all somewhat flattened. There were also rough areas in the bone that suggested absorption of the soft tissue that probably once occupied them. In the front part the calvarium was in many places porous, and it was sawed through very easily, the resistance to the saw not being nearly as marked as ordinarily. Along the usual saw-incision the calvarium was much increased in thickness—more so in some places than in others; this was due to a growth of soft, red tissue in the diploë, which forced the two tables apart and crept through the bony shell freely both externally and internally, so that, roughly speaking, the entire anterior half of the inner surface of the calvaria was occupied by an almost continuous layer of this new tissue; corresponding to this extent the external surface of the dura was rough and presented fungoid masses, usually flattened, that fit into the honeycombed depressions in the bone.

The longitudinal sinus was empty and smooth. The internal surface of the dura over the right hemisphere presented one mass 1 cm. in diameter, located at the junction with the falx, 4 cm. above the crista galli; there were no changes in the subjacent pia. The changes in the skull and the dura extended as far downward as the root of the orbits in front, and to a corresponding part laterally; posteriorly the limits were marked by a line drawn across the top of the head from one external auditory meatus to the other. The frontal sinuses and the orbits were not examined. There were no changes at the base of the skull except in the hypophysis, which unfortunately was lost.

Microscopic Examination.—Sections were made from most of the medullary tumors and from the growths in the ovaries. The structure is the same in all, and consists of round, lymphoid cells, with quite large nuclei arranged in a finely fibrillated, at times almost homogeneous, matrix; in places they are very closely packed together, in other places more loosely. There are many blood-spaces of irregular size and shape found in the tumors, usually without any definite walls, the blood-mass being in direct relation with the surrounding wall of lymphomatous cells.

NOTE.—Ignorant at the time of the relation that might exist between these tumors and changes in the blood, we failed to make as complete observations as could have been desired; nevertheless we have deemed the case of sufficient value to merit this report.

A CASE OF FATAL NAUSEA AND VOMITING OF PREGNANCY.

BY W. D. JONES, M.D.,
OF RISING CITY, NEB.

MRS. S., twenty-two years old, a blond, of generally good health, except for a naturally weak stomach, but of a neurotic temperament, married two years, called upon me about March 1, 1894, complaining of slight nausea and occasional vomiting. After seeing her a second time, and feeling positive that her symptoms were due to pregnancy, I told her of my opinion. The existence of this condition was resolutely denied.

The patient kept about for two months, when her stomach absolutely refused to retain other than the blandest form of nourishment, and that in the minutest quantity. This being insufficient to support the vital forces, rectal alimentation was tried, with discouraging results. Up to this time digital examination had been refused, but was finally permitted. The uterus was found low down in the pelvis and retroverted. These conditions were corrected without any appreciable effect. The cervix and the cervical portion of the vagina were painted with Churchill's compound tincture of iodin, and boro-glycerid tampons were used without encouraging results. All of the usual remedies having failed to give relief, and the condition becoming more alarming—

the woman being nervous and sleepless, with a pulse of 120, slight jaundice, retro-sternal pain almost constant and accompanied with vomiting of bloody mucus and coffee-ground material—evacuation of the uterus was proposed as a *dernier ressort*. Accordingly the cervix was dilated and the lower uterine segment packed with 10 per cent. iodoform-gauze, in the hope of stimulating uterine contractions. Having failed to produce the desired effect, the packing was removed at the end of thirty-six hours and replaced by two medium-sized bougies. At the end of twelve hours these were supplemented by a third, which accidentally ruptured the membranes. There being slight and gradually rising temperature and complete uterine inertia, the bougies were removed at the end of forty-eight hours, and immediate instrumental evacuation of the uterus was determined upon. With the skilful assistance of Dr. East, a fragmental delivery was rapidly accomplished under chloroform, with the loss of only a slight amount of blood. The uterus was irrigated with hydrogen dioxid. Churchill's tincture of iodin was applied to the endometrium and the cavity packed with iodoform-gauze. There was no appreciable shock following the operation, and a few hours afterward the patient expressed herself as feeling better.

The temperature subsided to normal three hours after the operation, but the pulse gradually increased to 130, and the patient died twelve hours after the operation.

An autopsy was not secured until forty-eight hours after death. The body had been embalmed and was in a perfect state of preservation. Emaciation was decided, with marked jaundice of the surface. The epigastric fat was about half an inch thick and very yellow. The liver and gall-bladder were normal; the kidneys were abnormally soft and flabby. Only a tactile examination of the kidneys was made, as an exploration of the stomach alone was granted. At the pyloric end of the greater curvature a distinct erosion of the mucous membrane was observed, laying bare the minute submucous bloodvessels.

This case, I think, corresponds with three reported by Dr. Edward P. Davis, of Philadelphia, in The Medical News for June 2, 1894, p. 597.

A CASE OF HYDROPHOBIA.

By C. M. BOWCOCK, M.D.,
of Springfield, Ill.

On June 5, 1894, I was telephoned to come immediately to see a child that had been bitten by a dog. I found a little girl, three years old, whose face had been quite badly lacerated by the dog's teeth. Within ten minutes from the time the accident occurred I had washed and thoroughly cauterized the wound with silver nitrate, and directed the mother to keep the parts thoroughly cleaned by means of a 1 : 3000 solution of mercuric chlorid. On the following day I found the little patient getting along nicely. Eighteen days after the accident I found the injury nicely healed and quite healthy-looking, the scars not being in the least inflamed. Three days later the child was brought to me complaining of itching and soreness in the scar, with headache and slight fever. The cicatrix was cyanotic and tumid, the glands under the jaw were a little enlarged and slightly sore, and the child was quite nervous. On the following day I was called, to find the girl suffering with well-developed hydrophobia. The mere sight of water would cause slight spasms, and even speaking of water would make her extremely nervous. There seemed to be an entire absence of appetite, the child refusing all food, liquid or solid. She continued to be very restless until death. The pulse ranged from about 120 to 140, and was small and hard. The temperature varied between 101° and 101.5°. The pupils were very much dilated at times, especially in the presence of strangers. All movements increased the general nervousness. There was slight redness of the fauces. The bowels were very much constipated. Intelligence was not impaired in the least. The voice was indistinct in tone, speaking seeming to require quite an effort, and increasing her nervousness.

On removing the patient from one room to another the sight of water in a bucket at least six feet away induced quite a violent convulsive paroxysm. During such an attack breathing seemed quite difficult. On applying the hands to the patient's legs or arms general trembling of the muscles could be detected. The little patient rapidly grew weaker, and in the last two hours of life lay in a comatose state, passing away quietly.

Considering the short duration of the child's sickness she was very much emaciated indeed. The case ran a typical though very rapid course, death taking place about eighteen hours after the first appearance of the symptoms.

The dog was a large, male, white bull-dog, weighing about eighty pounds. As far as I can learn he was a strange animal, and must have wandered from some distance. When first observed he attracted attention by his peculiar behavior and rapidity of movement. He was seen to attack and kill a small dog, and to bite a cow and rush on. He bit at several other dogs and objects on one of our main streets, and his strange actions attracted general attention. After biting the little girl, by whose screams a neighbor was attracted, the animal attacked the latter also, but was killed before he could do further damage.

THERAPEUTIC NOTE.

STRONTIUM LACTATE IN NEPHRITIS.

By LEWIS J. BATTLE, M.D.
of Washington, D.C.

The Medical News for April 21st, 1894, p. 425, contains an interesting lecture by Prof. J. M. Da Costa, on the treatment of nephritis. Three instructive cases are reported in which strontium lactate was used, and the opinion is expressed that this agent is an admirable diuretic, especially in cases of acute nephritis. On June 5, 1894, I was called to a man, fifty-six years old, an employé in one of the departments here, who had enjoyed good health until last April, when he contracted a severe "cold," which was followed by rheumatism in the lower extremities. His appetite was variable, and at times he suffered with intense nausea. He was markedly anemic. He complained of persistent dull pains in the lumbar regions. His temperature varied from normal to 101°. There was pronounced dropsy of the

face, abdomen and legs. The urine was scanty and high-colored, and rather of a smoky hue. It had a specific gravity of 1010 and contained 9 per cent. by bulk of albumin. There were present also, blood, hyaline and epithelial casts. The patient was directed to go to bed, and a diet of milk was prescribed. The bowels were kept open with concentrated solutions of magnesium sulphate, and infusion of digitalis was given as a diuretic. When I found that this treatment did not greatly benefit the patient, I tried strontium lactate in doses of thirty grains four times per day, as recommended by Prof. Da Costa. The man's appetite soon improved; his anemia diminished; his dropsical condition ameliorated, and the urine, greatly increased in quantity, presented no blood, less albumin and fewer casts. The drug is deserving of careful and extended trial in cases of nephritis, acute, subacute and chronic.

NEW DEVICE.

A NOTE UPON THE VALUE OF DIRECT MASSAGE OF THE CORNEA AS AN AGENT IN THE TREATMENT OF CORNEAL OPACITIES.

Presentation of a New Instrument.[1]

By H. McI. MORTON, M.S., M.D.,
OPHTHALMOLOGIST TO ST. BARNABAS' HOSPITAL,
MINNEAPOLIS, MINN.

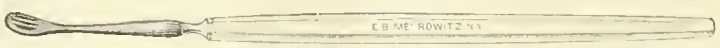
The large number of remedies that have been proposed to clear the cornea of scars or superficial infiltrations are but discouraging proofs that we have not as yet any one method of treatment that is eminently satisfactory. It may be observed, from their widely different local action, that the pathology of these formations has not been carefully kept in view by the advocates of many of the remedies proposed.

There is no great consecutive number of cases in which vision is impaired by an opacity that will yield to the same treatment, so far as a drug is concerned. The different conditions present demand different means of therapeusis: in the one case, a slightly irritating remedy; in the other, a decided irritant. It is not that I would advocate any new drug, but a method that facilitates the action of medicines in many cases, and even more, will in itself, I believe, do much toward the diffusion or entire dispersion of the obstruction to vision. The cure of peripheral opacities is usually demanded for cosmetic reasons alone, but in the case of a scar in the pupillary area, it becomes more than the disfigurement it causes, as it may greatly interfere with vision.

After any corneal ulceration a certain amount of the cellular infiltration present clears up, and in cases in which there has been little more than a loss of epithelium, an almost imperceptible scar remains. This is particularly true in the case of children. In such cases, very little of the true corneal tissue has been involved, the epithelium suffering most. There is a class of cases, however, in which the ulcer has left more or less decided loss of the cornea, which is partially or completely filled up with cicatricial tissue. In many cases treatment gives but unsatisfactory results. In a few of such patients I have, by a process of massage which I shall describe, been enabled to aid materially in rendering the cicatrix less dense. Of this, I am sure, and the diminished density will, of course, permit of much less diffusion of light and an improvement of vision that has been noticeable in some of the cases. The manner in which I have practised direct massage of the cornea during the past year and a half has been as follows:

The cornea is rendered insensitive by a 10 per cent. solution of cocain, which, at the same time, by its action upon the corneal epithelium, facilitates the entrance of the drug used. The head of the patient resting upon the knee of the surgeon, the eyelids are separated with the thumb and forefinger of the left hand, and the massage-spoon is held in the right. The cornea is gently rubbed alternately in a circular and radiating manner from one to three minutes, and this is repeated as often as is indicated in the individual case. It is to be remembered that the uvea, or region just external to the corneal limbus, nourishes the cornea, the lens, and the vitreous, and is the great lymph-producer for the eye, particularly the anterior segment. For this reason, I desire to lay stress upon the fact that these movements should not be confined to the area immediately adjacent to the opacity, but should be applied, not only all over the cornea, but also in the ciliary zone upon the sclera.

After the massage has been practised, I knead the globe with the thumbs of my two hands, carefully but thoroughly. By following out this plan the lymph-channels are thoroughly opened, and the activity of the lymph-currents increased. This in itself is not only a means of dissipating the opacity, but allows the medicament used an excellent chance for action. In massage through the lids, as spoken of by various authors, it is impossible to obtain the effect in a satisfactory manner, and for two principal reasons: in the first place, the manner of applying massage through the lids to the cornea, or any portion of the anterior ocular segment, is, if I may use the expression, a "blind" one. It is impossible for the operator to tell at just what point he is applying the massage. Again, the method is indirect, and cannot be as efficacious as when the massage-spoon



is employed. This instrument I devised about one year and a half ago, and I have used it continuously in suitable cases since. It is so arranged that the cornea is thrown into very small furrows, and it also will be noticed that any ointment used is held nicely between the forks, and can thus be "worked into" the cornea during the massage. I should like to add that this form of treatment has been of value in the deep forms of scleritis when used with the ointment of yellow mercurous oxid, and I have used it in the infiltration constituting interstitial keratitis, but am not yet ready to speak with any authority as to the result.

In pannus this procedure has been partially efficient, and in one case vision was recovered to a remarkable

[1] Read before the Minnesota State Medical Society, June 20, 1894.

degree. It must be borne in mind that this treatment is, as I have said, an adjuvant, and I do not pretend that it has any marvellous power. That it is rational in its action must be obvious; that it has yielded satisfactory aid in the treatment of corneal opacities in my practice I am sure.

In opacities following non-inflammatory conditions of the cornea it is of little avail, for here we have to deal with very different conditions. I am confident that it is far superior to massage through the lids; and the protection rendered the lens by the aqueous humor, and the necessary skill of the operator, make the danger of injury to the lens very slight indeed.

The instrument is made by Mr. E. B. Meyrowitz, of New York. A citation of cases, I believe, would avail little. I give my experience in the use of what I call direct corneal massage, and hope that it be extensively tried and found to be as valuable an adjunct to the therapeutics of corneal neoplasms as I have found it.

Dayton Building.

MEDICAL PROGRESS.

Successful Gastrorrhaphy for Perforated Gastric Ulcer.—Gilford (*Lancet*, No. 3692, p. 1369) has reported the case of a woman, twenty-nine years old, who presented symptoms of gastric ulcer at the age of twenty-one, when she vomited blood on two occasions. In the interval, though subject to dyspepsia of indefinite nature, there had not, until recently, been marked pain or return of vomiting. This last appeared to bear no relation to the ingestion of food, and the vomited matters were free from blood. Pressure over the greater part of the abdomen occasioned no pain, but at one spot that could be covered with a silver quarter-dollar the pressure of the finger caused acute pain. Appropriate treatment was prescribed, and for a time the woman improved, but in the course of four months pain and vomiting returned. Some two months later, after a breakfast of cold mutton and bread and butter, and while engaged in household duties, the woman was seized with agonizing pain a little above and to the left of the umbilicus. The pain extended to the middle and lower part of the sternum, and especially to the shoulder of each side. Respiration was mainly thoracic, and was restricted by the pain induced by deep breathing. The abdominal muscles were rigid and sensitive to pressure. There was nausea, but at first no retching or vomiting. The temperature was 96.8°, the pulse 68, regular and of normal size and tension. A diagnosis of perforation of a gastric ulcer was made and a solution of opium injected subcutaneously. Celiotomy was decided upon, and an incision three and a half inches long was made in the middle line. On opening the peritoneal cavity a small perforation with friable margins was found on the anterior wall of the stomach, near the center. The interior of the stomach was explored for other ulcers, but none was found, and the margins of the perforation were then excised. Ten silkworm-gut sutures were next introduced through the whole thickness of the stomach, including the mucous membrane. After the wound had been closed a tube was passed into the stomach and water poured into it through a funnel, to test the efficiency of the sutures. The approximation having been found competent, the abdominal cavity was well irrigated with boiled water and the wound closed, a bulbous, glass drainage-tube being first passed through, so that its bulbous extremity rested on the closed ulcer. For seven days the woman was fed with peptonized-milk enemata, varied occasionally with beef-tea and raw meat, six ounces being given from every four to six hours. On the ninth day the wound suppurated, the temperature rose slightly, and the woman appeared haggard and depressed. On the tenth day two tablespoonfuls of peptonized milk and one of beef-jelly were given every hour by the stomach. Three days later the diet was enlarged to include oysters and farinacea. On the fourteenth day the woman passed a stool that was said to have been capped with pus. On the seventeenth day the temperature rose to 103° and the pulse to 132, and the expression became anxious, sunken, and haggard. An exploratory examination was under consideration, when during the night the woman was suddenly aroused from sleep by an acute pain a little above and to the left of the umbilicus, and almost immediately afterward called out for the bed-pan. A pale, loose, highly offensive stool was passed, evidently composed principally of pus, and three other motions of a similar character were passed subsequently during the day. The temperature rapidly fell and did not again rise. The woman now speedily improved, and three weeks after the operation was sitting up in a chair. In the following year she gained in weight, and remained free from dyspeptic symptoms.

Trifid Uterus.—Depage (*Archives de Tocologie et de Gynécologie*, vol. xxi, No. 7, p. 550) has reported the case of a girl, twenty-two years old, in whom menstruation first appeared at the age of eighteen years, and who from this time had suffered with vague pains in the back and abdomen, becoming progressively more localized. The pain occurred in paroxysms setting in on the fifth day of menstruation, and lasting at times for ten days. Menstruation was otherwise normal. There was, however, a slight leukorrhea. Tumefaction of the abdomen had never been observed. On palpation a tumor about as large as a fetal head was detected in the left iliac fossa, extending a little to the right of the median line. The mass was slightly movable, appeared to fluctuate, and presented an irregular though not lobulated surface, and dipped into the pelvis. To the right and below, directly behind the pubis, a second tumor, harder than the first, and not fluctuating, could be felt; it was about as large as a fist and also dipped into the pelvis. On vaginal examination the cervix uteri could not be felt, but a tumor projected into the vagina. With the aid of a speculum the cervix was found displaced forward and to the right. It was almost effaced, and manifested itself as a small, round opening. By means of a sound the uterus was found to be displaced to the right; the bladder was likewise displaced to the right and was situated directly in front of the uterus. On conjoined vaginal examination and abdominal palpation, it was found that the two tumors were movable upon one another. It was at first thought that the condition was one of ovarian cyst, but it was finally concluded that there existed multiple subperitoneal fibromata of the uterus. Celiotomy was decided upon, and after opening the abdomen a fluctuating cystic tumor was found

in the left broad ligament, intimately connected with a solid tumor behind the pubis and projecting into the vagina. The cyst was adherent to both omentum and intestines. On introducing the hand into the right iliac fossa the ovary was found enlarged and cystic, and it was extirpated. It was found impossible to remove the cyst and the tumor through the abdominal wound, and after a ligature was applied to the pedicle of the tumor the abdomen was closed, a provisional dressing applied, and the woman placed in a position for the removal of the new formations through the vagina. An incision was made around the cervix, the uterus dissected from the bladder, the cul-de-sacs opened, clamps applied, and the tumor-mass removed. The wounds were closed and suitable dressings were applied. The patient made an uneventful recovery. The cystic tumor was found to involve the left ovary. The remainder of the mass consisted of a uterus with three divisions. One of these communicated with the right tube and one with the left tube. The third was a closed sac connected with the common neck of the other two. The walls of all consisted of typical muscular tissue and were lined by characteristic membrane and contained utricular glands. The explanation of the occurrence of the trifid uterus is thought to reside in the formation of a diverticulum from one portion of a bifid uterus, resulting from a failure of union of the ducts of Müller.

The Preservation of Organized Urinary Sediments, Particularly Tube casts.—BOHLAND (*Centralblatt für innere Medicin*, 1894, No. 20, p. 449) details a method for the preservation of organized urinary sediments. The morphotic elements are collected by sedimentation or centrifugation, the excess of fluid removed, the sediment washed with a physiologic salt-solution and then treated with Müller's fluid. The last is renewed three or four times during a period of two weeks. After removal of the Müller's fluid the sediment is hardened by means of absolute alcohol, which is renewed until it takes up no more color. The sediment can be thus kept, or if the supernatant alcohol is permitted to evaporate the sediment may be preserved in the dry state. Sediments thus prepared may be used for purposes of demonstration or instruction, or they may be additionally stained.

With the same end in view, SMITH (*Southern Medical Review*, vol. i, No. 1, p. 4) separates the sediment by permitting the urine to stand in a conical glass, or by the use of the centrifuge, the supernatant fluid being cautiously removed. To this sediment is added sufficient of a solution of 10 or 15 grains of chloral to the ounce of water to restore the fluid to its original volume. After the lapse of twelve hours the supernatant chloral is poured off and a similar amount of fresh solution added. This procedure is repeated twice or thrice, the final amount of fluid, however, not being more than half or third of the original. If the chloral-solution be renewed every three or four months, such a preparation may remain in good condition for a number of years. Microscopic preparations made with comparatively fresh solutions of chloral, mounted on perfectly clean slides, overlaid with clean covers, and well sealed, will remain in good condition for months.

Pulsating Empyema.—At a recent meeting of the Société Médicale des Hôpitaux, BÉCLÈRE (*L'Union Médicale*, 1894, No. 60, p. 718) presented a man, thirty-one years old, who, nearly three years before, had been seized with cough, and three months later with pain in the left side of the chest, together with other evidences of pneumothorax and effusion into the left pleural cavity, the apex-beat being situated at the level of the right nipple. Under suitable treatment the condition of the patient improved, and he was able to resume his occupation. A month before coming under observation the dyspnea suddenly increased without appreciable cause. The apex-beat was found in the sixth interspace on the right side, several inches from the median line. The left pleural cavity was occupied by an effusion, and the left side of the chest, corresponding to the sixth, seventh and eighth interspaces between the axillary lines, was moved in pulsation synchronously with the action of the heart. For the relief of the dyspnea thoracentesis was practised, and nearly six pints of pus evacuated, in which examination failed to disclose the presence of microörganisms. There was dulness on percussion over the entire left half of the chest; neither metallic tinkling nor a succussion-sound could be elicited, although on auscultation below the clavicle, at the same time as percussion was practised over any part of the lower third of the chest, a metallic sound could be heard. In the discusion RENDU expressed doubts as to the case being one of true pulsating empyema, as in this condition the effusion is usually circumscribed. He rather thought that the pulsation resulted from the transmission of the movements of the heart displaced and compressed by the large effusion.

Two Cases of Xeroderma Pigmentosum in One Family.—DE AMICIS (*Berliner klinische Wochenschrift*, 1894, No. 20, p. 467) has reported the occurrence of xeroderma pigmentosum in two brothers, six and four years old, respectively, without hereditary predisposition. When the elder was eight months and when the younger was one year old there appeared upon the face, the neck, the dorsum of the hands, and lower third of the forearms numerous spots, some reddish and telangiectatic, some lenticular and pigmented, others larger, blackish-yellow and deep-black in color. At the same time there occurred cicatricial and atrophic areas and infiltration of the margin of the lids of the eyes and ectropium. The skin was dry, rough, scaly, and parchment-like. When the elder child was five years old there appeared upon the face, and particularly upon the cheeks, an eruption of fungus-like elevations, varying in size from a pea to an almond; the same conditions appeared in the younger child at the age of three years. In the elder the nose became sharp and the alæ atrophic. Both presented notable enlargement of the epiphyses of the bones of the hand; one of the children presented numerous acne-pustules upon the face. Despite the most careful treatment the condition of the children failed to improve. Some of the new-formations disappeared spontaneously, leaving cicatrices; others were removed with a sharp spoon. Examination of the blood and of bits of removed tissue failed to disclose the presence of microörganisms. The tissue presented a granular, vascular appearance, with epithelial cells arranged as in lobular or tubular epitheliomata, and numerous cells undergoing degeneration.

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THE CRANIAL CHARACTERISTICS OF CONVICTS.

IN the search for a criminal type anthropologists have described certain characteristics of the human skull which they believe are more commonly found in convicts than in the population at large, and to which they ascribe a definite importance, considering them signs of inferiority or degeneration, and holding that the individuals presenting such marks must belong to an atavistic or degenerate variety of the race.

Crimes or acts of an anti-social nature are more common in the primitive races than in the more enlightened—at least it is claimed that they are more natural to the inferior races, and, therefore, criminals must be more akin to savages, and must, like them, more often present the signs of inferiority. Comparisons have thus been made between the skulls of convicts and those of savage races, of the insane and of the so-called *honest* individuals of enlightened nations, and the anomalies noted with an exactness that might well be followed in other fields of science. Thus it has been observed that the average capacity of the skulls of convicts (about 1455 c.c.) is below that of the skull of normal man (1500 c.c.). The term normal is here used to denote the population outside of prisons, who are apparently sound in body and in morals. LOMBROSO, the founder of the school of criminal anthropology, makes a further differentiation by claiming that the thief more often presents a very small skull-capacity than a normal one, while the murderer more often presents a very large capacity. A cranial capacity of from 1100 to 1200 c.c. is common among thieves, while a capacity of from 1600 to 1700 c.c. is more frequent among murderers. BORDIER has found that prehistoric man had a large skull-capacity.

No material difference has been found in the measurements of the horizontal circumference of the skull in different classes of society. A small circumference is as frequent among the normal as among convicts. As regards the cranial index, the race-factor plays so important a rôle that no generalizations are here possible. While LOMBROSO considers a brachycephalic skull common in Italian murderers, BENEDIKT finds dolichocephaly to prevail among German murderers, mesaticephaly in the French, and brachycephaly in the Russian.

As LOMBROSO shows, not only must the nationality be taken into account in a consideration of the cranial features, but even the smaller provinces show differences in the population. Thus, Piedmont, a province of Italy, contains a greater number of brachycephalics, while the inhabitants of Sardinia and Sicily and other provinces of Italy are mostly dolichocephalic.

Asymmetry of the skull has been considered an important anomaly. BENEDIKT finds that 50 per cent. of thieves examined present cranial asymmetry; BAER finds this in 12 per cent. of all criminals; while LOMBROSO's figures are 23 per cent. for criminals, 7 per cent. for the insane, and 4 per cent. for the normal individual.

This condition, however, is quite frequent among normal individuals. An investigation of the Königsburg collection of skulls, of presumably honest persons, showed that 25 per cent. were irregular in outline. LE BON, in making measurements of 300 skulls, could not find *one* perfectly symmetric. Even a greater asymmetry among convicts can be explained by the fact that many of these come from the poorer classes. In the first place, rickets and other diseases which result in premature union of the sutures or undue yielding of the bones are more common among badly nourished children than among the population generally. Secondly, accidents during pregnancy and labor are more likely to occur among this class than among those who are

well attended, and who are not required to engage in arduous labor during the period of gestation. Finally, the attention the child is likely to receive during its growth would be such as to influence the shape of its skull, as well as the rest of the body.

With some nations it has been the custom to artificially mould the heads of infants; but observers have never been able to discover any bad effects produced thereby. On the other hand, marked deformities have coexisted with perfect sanity and exalted character.

Another anomaly, supposed to be frequently present in criminal skulls, is the persistence of the frontal suture (sutura metopica). BORDIER claims to have observed this in 19 per cent., LOMBROSO in 12 per cent., but WELCHER has observed the same condition in 10 per cent. of normal skulls, and ANUTSCHIN, in an examination of 16,000 skulls, found the frontal suture persistent in 8 per cent. among Europeans; in 2 per cent. among American Indians; in 5 per cent. among Mongolians, and in 1 per cent. among Australians. From his observations he concludes that the higher the race the more frequent the presence of the frontal suture.

The inter-parietal bone, which results from a persistence of the suture between the upper and lower portions of the occipital bone at the superior curved line, and which has been named the Inca bone, because it is so commonly found in the skulls of Peruvians (60 per cent.), is observed in only 10 per cent. of normal Europeans, and in 10 per cent. of convicts, while it has been found in 30 per cent. of the insane. Sometimes an additional (pre-interparietal) bone is formed from the triangular Inca bone by a transverse suture.

A strongly developed crista frontalis along the inner surface of the frontal bone is often noted in criminal skulls. While it attains a height of 8 mm. in only 9 per cent. of normal individuals, it reaches this size in 20 per cent. of criminal skulls. This peculiarity is supposed to be due to premature union of the two halves of the frontal bone, and is common among the insane.

Wormian or sutural bones are frequently found in criminal skulls. SILVA observed them in 46 per cent. of criminals; LOMBROSO in 32 per cent.; SOMMER in 68 per cent. of insane, and in 28 per cent. of normal individuals; and RANKE in 20 per cent. of normal skulls. They are found in all of the sutures, but most commonly in the lambdoid.

A fossa is sometimes present on the inner surface of the occipital bone in the median line, and is called the fossa occipitalis mediana. LOMBROSO found it present in 16 per cent. of convict-skulls, and in only 4 per cent. among normal individuals. Among the lower races it occurs frequently, in the proportion of from 20 to 40 per cent. It is present normally in the lower primates, especially in the lemurs, but it is not found in the higher anthropoid apes. It serves for the lodgment of the middle cerebellar lobe, the hypertrophied vermis of the cerebellum. It has been found in 22 per cent. of the insane. BIELAKOW considers this middle fossa a certain sign of atavism. It is usually triangular in form, and varies greatly in size.

A retreating forehead is found in 36 per cent. of criminals, and in 18 per cent. of normal individuals, but RANKE has shown that this is an ethnic character. The Middle Germans are distinguished from the South Germans by a more distinctly retreating forehead, yet as a class the former are no more criminal than the latter.

A strongly-developed and projecting superciliary ridge was found in 58 per cent. of the 206 criminal skulls examined. This feature, combined with large orbits, is present in 25 per cent. of normal men, and in 29 per cent. of normal women, while it is found in only 19 per cent. of female criminals. The criminal woman shows the various anomalies less often than the criminal man, and many of these even less often than the normal woman.

The foregoing are the principal characteristics of the so-called criminal cranium. Other anomalies are met with, but less constantly than those mentioned. Most often several anomalies are found in the same skull.

It is only as they affect the structure or function of the brain that they can be considered as of any significance, but unfortunately all researches on the criminal brain have as yet failed to show where the centers for honesty, amicability, and chastity are localized. We are not yet able to discover a man's religious belief by physical diagnosis, and crime is often as much a matter of belief as is religion.

The criminal, the anti-socialist of one generation is worshipped as a god by the next. As HEGER well stated the case before the Congress of Alienists, held a few years ago at Antwerp: "The grade of intelligence and the social worth of men depend upon factors not to be determined by the cubic contents of the skull or the measurements of the brain." Ethically considered, we doubt if there is much

difference between the man who steals a ride on a freight car and the man who "corners" a real or fictitious market. Yet, socially the one is called a thief, and is committed to prison, while the other is termed a shrewd financier, and sent to the Senate to act as representative of an honorable constituency.

There can be no objection to the record of careful observation by criminal anthropologists, but when they undertake to compare the convict's skull with that of the man who is able to keep out of prison, because they consider the one criminal and the other honest, they are liable to commit the same absurdities as those who would discover a man of genius by his "bumps."

That criminal acts are often due to a diseased brain, no one can dispute; but crime is likewise caused by ignorance, by necessity, and very often by avarice; only the first cause, disease, is capable of demonstration. If degenerations are more common in the population of prisons than in the population at large, the fact simply means that degenerated criminals are the more likely to be unsuccessful and the less likely to escape conviction, and also the more likely to die in prison, and thus come to the notice of investigators.

In 1892, in the State of Pennsylvania, 15,669 persons were indicted for crime by the grand juries, and tried in court, and of these only 3669 were convicted and sent to prison. Who are the criminals?

OPHTHALMOLOGY AND THE EDINBURGH CONGRESS.

Nearly three years ago we called attention to the fact that so far as a large part of the practice of physicians in general is concerned a great medical discovery is widely ignored.[1] It is still alarmingly frequent, even in the United States, that the refractive and muscular anomalies of the eye as sources of general reflex trouble are overlooked, although ophthalmologists and neurologists have been persistently emphasizing the lesson for many years, and have been offering the most convincing proofs that in doing so they are neither hobby-riders nor wilful perverters of the truth. In many centers and by many physicians the recognition of the truth is a matter of routine practice, but even with us a vast deal remains to be done before the truth is in danger of exaggeration.

[1] Medical News, December 12, 1891, p. 691.

It is, however, most strange that in Europe, whence come at least the fundamental principles of ophthalmic science, in this birthplace of refraction, the actual application of these principles falls far behind that of the usage in our country. It would also appear that no amount of iteration and reiteration of the fact of this neglect is of much avail in bringing about any admission of it on the part of many of our European *confrères*. Errors of muscular balance that do not induce strabismus are not usually looked for, and unless an error of refraction is strikingly large it is often ignored. Personal inquiries recently made of opticians in several large English cities brought out the admission that a large, a very large proportion of all prescriptions for glasses are for non-astigmatic lenses and without anisometropic differences. In asking for the loan of a case of test-lenses of a large London optician it seemed a little strange to him that the cylindric lenses were wanted quite as much as the spherical.

An American oculist who fails to test for heterophoria every pair of eyes examined would soon find himself—where he is! But it is doubtful if the practice is very general abroad.

A noteworthy proof of these facts was presented at the medical congresses recently held in England. At the meeting of the British Medical Association at Bristol the authors of papers on refraction and reflex ocular neuroses were indeed permitted to read their communications, but not a word of discussion upon them was allowed. At the International Ophthalmological Congress held at Edinburgh papers of the same character were put off till the last hour of the session; the readers were, we were about to say, bullied into silence or an equally ridiculous condensation, and the President permitted himself to announce that as these papers contained nothing new all discussion must be omitted. Many members of the Congress will long carry with them a vivid remembrance of the last hour of the Congress, a remembrance curiously compounded of amusement, astonishment, and disgust.

It is not permissible to impute unworthy motives, but it is a fact worth mention that the contributors thus dismissed with what seemed flagrant discourtesy were Americans who had been invited to contribute, and who had come a far greater distance than other members. Much has been written concerning the geographic distribution of disease, but little has been written of the more interesting geography of medical prejudices and insularities.

It might with justice be asked, either generally of most medical gatherings, or specifically of the Edinburgh Congress, that if only the absolutely new were allowed expression, and useless prolixity were always tyrannically silenced, what would then be the size of the printed volumes of the *Transactions?*

If one visits a foreign eye-hospital it is not dreamed that anything but operations (and most operations, it goes without saying, are cataract-operations) are interesting or worth witnessing. Every conceivable shade of difference in operating for cataract is emphasized, even harped upon, until one is both very much amused and very much bored, and one asks himself if ophthalmology begins with this millimetric Niagara and ends with a stick of cupric sulphate. Likewise in congresses, as one humorous and human speaker at Edinburgh said, everyone comes loaded to the mouth with descriptions of his own peculiar method of operating upon cataract, and returns home fully convinced that that method is absolutely the best, and determined to make no change whatever in it. In these meetings the cataract-controversy rolls on without check or limit until some one whispers granular lids, and the fugue then takes a new movement and lease of life.

Despite all minor differences and dissensions, there is among a large number of excellent and conservative oculists a perfect unanimity of conviction, buttressed by incontrovertible clinical demonstrations:

1. That the eye is a frequent source of functional systemic disturbance, headache, and multiform nervous and nutritional abnormality.

2. That errors of refraction, often of slight degree, are the starting-points of these reflex neuroses, as also of localized ocular diseases.

3. That muscular imbalance also is a frequent cause of the same disturbances.

It would appear natural that, in view of the evident perfection of technique and the wearing out of interest in the old problems of ophthalmology, eye-specialists would welcome an extension of their science into new fields, where, moreover, trustworthy testimony declares there is much new truth to be learned on our part and much old disease to be relieved on the part of patients.

Discourtesy to individuals and even to nations may readily be pardoned, but discourtesy to medical progress is genuine sin against the scientific Spirit, and is not to be forgiven. Let us hope that when the next Ophthalmic Congress meets, six years from now, and in the country of Donders, it will be more considerate of a medical truth and of those who urge its value.

EDITORIAL COMMENTS.

Notes upon the Meeting of the British Association for the Advancement of Science.—The meeting of the B. A., as it is colloquially called, held at Oxford last month, was a most excellent one, as all who were present agree. The number attending was 2321; the receipts, $10,675. The gathering was a model of dignified and sincere interest in knowledge, of freedom from "politics," of large-hearted and kind-hearted hospitality, both personal and collective, and it was held in a "city of colleges," of learning, and of antiquarian and esthetic interest unsurpassed in the world. If one wearied of the strain and excitement of new scientific thought and discovery looking forward into dim futurity, a step brought him to walks and meadows knowing nothing of these things, or to cloisters and chapels looking backward to a dim antiquity.

Most happy was the presidential address of the Marquis of Salisbury on the unsolved riddles of science, or, as one might name it, the nescience of science. Three entities lie at the foundation of all existence and all knowledge: matter (atoms), life, and the ether. With all the discoveries of science, with all the progress of the human intellect, no hint or glimpse has been gained as to the origin of any of these. The mind cannot even think of any theory of their origin. It was a happy thought of this perfect type of man of the world, as well as, in many senses, master of the world, to tell the greatest gathering of scientists how things scientific look to that world. There are few things more ridiculous than the cock-sure "evolutionist" and "scientist" who, puffed up with his "little dangerous knowledge," thinks all mysteries have been solved, and that all things are "explained" by mechanics and the "struggle for existence." Perhaps even he may learn the need of some intellectual modesty from the official assurance that "we live in a small bright oasis of knowledge, surrounded on all sides by a vast unexplored region of impenetrable mystery." The chancellor of England's greatest institution of learning, the president of the world's greatest scientific body, quotes with hearty assent the following words of the world's greatest living physical scientist:

"The hypothesis of natural selection does not contain the true theory of evolution, if evolution there has been in biology. . . . I feel profoundly convinced that the argument of design has been greatly too much lost sight of in recent zoölogical speculations. Overpoweringly strong proofs of intelligent and benevolent design lie around us, and if ever perplexities, whether metaphysical or scientific, turn us away from them for a time, they come back upon us with irresistible force, showing to us through Nature the influence of a free will, and teaching us that all living things depend on one everlasting Creator and Ruler."

As teachers of physiology, hygiene, and therapeutics, the words also warn us of a truth and a duty too often forgotten or denied.

Before this our readers have doubtless learned of the announcement of the new element discovered by Lord Rayleigh and Professor Ramsey, and made public by them at the Oxford meeting. The secret had been well kept, but it was our good fortune to be present at the meeting of Section B when the communication was made, and to talk with the authors afterward concerning their great discovery. It is indeed most noteworthy that a new element should have existed in the air that chemists have been breathing and investigating since science began. The discovery will perhaps win the Smithsonian Institution prize of $10,000. The authors do not therefore give a name to the "gas," nor even do they publicly state that it is a new element they have discovered. Despite some adverse criticism and the evident need of confirmation by other researches, there can be but little doubt of the elemental nature of "crypton," as the "gas" will probably be named. It is present in mechanical mixture with the nitrogen of the air in the proportion of about 1 per cent., and has a density of a little less than 20. It is quite impossible to foresee what may be the practical uses of the discovery to hygiene and to medicine. Discoveries usually lead to uses different from what the discoverers dreamed of, as, for example, the history of tuberculin proves; and we may soon learn of most practical benefits to the world arising from some ingenious application of the knowledge of this small amount of apparently inert gas, which, hitherto unknown to physiologists, we have been breathing every minute of our lives.

Many good papers were read having a more or less important relation to medicine. We have space to allude to but a few.

DR. A. BERNSTEIN, of Berlin, read a paper on "The Chemical Action of a New Bacterium in Milk." This bacterium, which is very small, has the property of rapidly making sterilized milk transparent, the change beginning at the top and proceeding downward. No gases are evolved and no coagulation takes place. The casein and other proteids in the milk are converted into peptone. In order to apply this fact to the production of peptonized milk, useful as an article of food, a small quantity of milk in which the bacteria are growing is mixed with a considerable quantity of fresh milk from which the cream has been removed. The mixture is kept at a suitable temperature, and fresh quantities of milk are added from time to time. When the whole liquid has become transparent it is boiled in order to kill the bacteria and coagulate any casein that remains unaltered. The product is a reddish, slightly acid liquid, with an aromatic odor. By adding along with the bacterium some pure yeast that has the property of attacking milk-sugar an alcoholic preparation can readily be obtained. In all probability the same or a similar bacterium plays an essential part in the ripening of cheese.

MR. L. COBBETT, in a paper on "Local Immunity," described certain experiments in which he had found that tissues which had once been the seat of erysipelas retained the power of reacting more energetically than normal tissue when inoculated with the sterilized products of cultures of the erysipelas-organism. He suggested that immunity might be explained as being due to an ability on the part of the tissues to react to chemic substances produced by bacteria.

DR. LORRAIN SMITH and MR. TREVITHICK contributed a paper on "A Form of Experimentally Produced Immunity," in which they described the results of experiments undertaken by them in order to test the influence of various conditions in producing susceptibility to disease. In cases in which an irritating powder had been injected into the pleural cavity of animals such animals were subsequently found to be more refractory to certain diseases.

To the anti-vivisectionist movement Professor Schäfer in his presidential address credits the following results: 1. The establishment of the Physiological Society; 2, the passing of the Cruelty-to-Animals act, which stands as a guarantee that the excesses formerly charged to physiologists are not possible; 3, the establishment of the Association for the Advancement of Medicine by Research; 4, the re-establishment of the Section of Physiology of the British Association. These results Prof. Schäfer ascribes to the anti-vivisectionists on the principle that "the blood of the martyrs is the seed of the Church." It would almost seem to be the logic of the situation, therefore, that vivisectionists should join hands with the "antis" in order to stimulate scientific research. We doubt if scientific enthusiasm and research has had such an ignoble origin.

When treating of the attraction-particle, the thyroid gland, the supra-renal capsules, and the pancreas, Prof. Schäfer is more interesting and convincing:

"There is no organ of the body, however small, however seemingly unimportant, which we can presume to neglect; for it may be, as with the supra-renal capsules, the thyroid gland, and the pancreas, that the balance of assimilation and nutrition, upon the proper maintenance of which the health of the whole organism immediately depends, hinges upon the integrity of such obscure structures; and it is the maintenance of this balance which constitutes health; its disturbance, disease. Nor, on the other hand, dare we, as the investigation of the attraction-particle has shown, afford to disregard the most minute detail of structure of the body.

> 'All is concenter'd in a life intense,
> Where not a beam, nor air, nor leaf is lost,
> But hath a part of being.'"

Sweat-shops and Smallpox in Chicago. — We recently took occasion to point out the likelihood of transmission of infectious disease through the intermediation of so-called sweat-shops,[1] and the first special report by the Chief Factory Inspector of Illinois on the epidemic of smallpox that recently prevailed in Chicago brings confirmation of the views then expressed.

The factory-laws of the State of Illinois provide that in case articles manufactured in sweat-shops or factories within the State are found by the factory-inspector to be infested with vermin or contaminated by infectious or otherwise dangerous material, these articles shall be destroyed by the local health-officer upon the demand of the chief inspector.

It appears from the report that there are 950 licensed sweat-shops for the manufacture of clothing in Chicago, and about 25,000 other rooms in which garments are made. The principal factory-inspector, with ten assist-

[1] THE NEWS, June 23, 1894, p. 697.

ants, had enough to do previous to the epidemic in securing compliance with the provisions of the law regulating child-labor. In the fall of 1893 a few cases of smallpox appeared in Chicago. In January there was a real epidemic, confined almost exclusively to a radius of ten blocks surrounding the smallpox hospital. This institution is in the hands of a charitable organization, but is practically farmed out by the political machine, and is wholly beyond control of the Health-Commissioner, both from a medical and from a sanitary standpoint. This institution undertook to care for so many cases and the place became so overcrowded, and the death-rate became so appalling, that the knowledge of its condition caused the people to refuse to permit the removal of members of their families who happened to be stricken with the disease. Then the authorities tacked yellow cards, usually in an inconspicuous position, upon the buildings in which cases arose, and allowed the disease to spread for a month or two. Under these circumstances, the duty of the factory-inspector evidently called for the protection of consumers of ready-made clothing from the dangers of smallpox contagion carried by the clothing made in sweat-shops in which persons were suffering from this disease. The inspector therefore informed 176 Chicago tailors and wholesale dealers in clothing, that have their work done by sweaters, that smallpox was epidemic and that there was danger of infection, and also called attention to the provisions of the law for the destruction of infected goods. Only a few of the manufacturers paid any attention to the suggestion of the inspector, so that it became necessary to adopt other means to secure compliance with the spirit of the law. The first goods were destroyed on May 12th by a health-commissioner under a threat of mandamus.

There does not appear to have been that co-operation between the local health-officers and the State Board of Factory-Inspection that the exigencies of the case demanded. In the meantime smallpox spread in various parts of the Western United States. On this account the various State boards of health were aroused, and a conference was held in Chicago on May 10th. The result of this conference was, strangely enough, the contribution of a fund of several thousand dollars by the manufacturers of clothing that employed Chicago sweaters, to be expended in the inspection of sweat-shops and in vaccinating their workers, the disbursement and the work to be under the direction of the Illinois State Board of Health; on condition that the State of Illinois, through its State Board of Health, guarantee the non-infective condition of the clothing manufactured in the sweat-shops of Chicago. The report of the factory-inspector shows that this inspection was wholly ineffectual, so far as securing to the consumers of clothing immunity from the disease was concerned, and the report is the strongest argument that has lately been put forth for the total abolition of sweat-shops' work.

It should be the duty of every medical man in the country, as well as in the city, to demand the protection of his families from the danger of small-pox and other infectious diseases, by such legislation as will require all garments to be labelled to indicate the condition under which they are made; then it would be possible for purchasers to demand factory-made goods and to refuse their patronage to stores through which infection might come with sweat-shop-made clothing Local boards of health could thus interdict the sale of this dangerous commercial product.

The Insidious Reading-notice.—We regret to see the reading-notice (and of nostrums at that) creeping into the otherwise clean and interesting columns of our respected cotemporary *The Canadian Practitioner*. It is but recently that we had occasion to congratulate the *Practitioner* on the elimination of interleaved advertisements from among the pages of its text. We were encouraged to hope that its example would not be without influence upon other journals and that its action might be viewed as a promise of a finer discrimination in general in the acceptance of advertisements by medical journals.

SELECTION.

THE NOSE AS A SOCIAL TEST.

A very interesting investigation into the habits, customs, physical characteristics, and religion of the natives of Northern India, initiated by Mr. H. H. Risley, and carried on under his supervision by the Indian Government, may be mentioned on account of the illustration it affords of the value of exact anthropometric methods in distinguishing groups of men. In Mr. Risley's examination the nose, instead of being vaguely described as broad or narrow, is accurately measured, and the proportion of the greatest width to the length (from above downward), or the "nasal index," as it is termed (though it must not be confounded with the nasal index as defined by Broca upon the skull), gives a figure by which the main elements of the composition of this feature in any individual may be accurately described. The average or mean nasal indices of a large number of individuals of any race, tribe, or caste offer means of comparison which bring out most interesting results. By this character alone the Dravidian tribes of India are easily separated from the Aryan. "Even more striking is the close correspondence between the gradations of racial type indicated by the nasal index and certain of the social data ascertained by independent inquiry. If we take a series of castes in Bengal, Behar, or the North-western Provinces, and arrange them in the order of the average nasal index, so that the caste with the finest nose shall be at the top, and that with the coarsest at the bottom of the list, it will be found that this order substantially corresponds with the accepted order of social precedence. The casteless tribes who have not yet entered the Brahmanical system occupy the lowest place in both series. The fisher castes are a trifle higher in the scale; the pastoral, the cultivating, and a group of cognate castes—from whose hands a Brahman may take water—follow in due order; and from them we pass to the trading and the landholding classes, and the upper crust of Hindu society. Thus, it is scarcely a paradox to lay down as a law of the caste organization in Eastern India that a man's social status varies in inverse ratio to the width of his nose." The results already obtained by this method of observation have been so important and interesting that it is greatly to be hoped that the inquiry

may be extended throughout the remainder of our Indian Empire.—*The Presidential address of* Sir W. H. Flower, F.R.S., *on Anthropology, before the British Association for the Advancement of Science.*

REVIEWS.

The After-treatment of Cases of Abdominal Section. By Christopher Martin, M.B. (Edin.), F.R.C.S. (Eng.), Surgeon to the Birmingham and Midland Hospital for Women. 8vo, pp. 48. London: Simpkin, Marshall, Hamilton, Kent & Co., Limited, 1894.

The author of this little work tells us in his preface that it embodies the experience gained in the management of over one thousand cases, mainly in association with Mr. Lawson Tait. Hence it will not surprise the reader to find that the views and methods presented bear more or less distinctly the impress of that bold and skilful surgeon. They are very decided and very forcibly put, and may be read with profit not only by beginners in abdominal surgery but by many who are more advanced.

On one or two points we take issue with Mr. Martin. In speaking of drainage he mentions a number of conditions requiring this measure, and among them "where, from any cause, free oozing of blood is taking place into the peritoneum," or, again, "where there is reason to believe the bowel or the bladder has been injured." We doubt the propriety of closing the abdominal wound while blood is escaping freely into the cavity; and we think that if the surgeon suspects damage to the bowel or the bladder he ought to investigate it, and if possible repair it. Of course, there are exceptional instances in which such risks must be run in the endeavor to avoid greater dangers which are imminent; but they are, fortunately, very rare.

Again, our author several times speaks with favor of the injection of "a weak solution of perchlorid of iron" into the peritonial cavity to check bleeding. How strong a solution he would use he does not state; but we cannot regard the practice as one to be commended.

As a whole, this book must be welcomed as a very valuable summary of the results of a large experience in abdominal surgery.

A Manual of Diseases of the Nervous System. By W. R. Gowers, M.D., F.R.C.P., F.R.S. Second edition, revised and enlarged. Vol. II. Diseases of the Brain and Cranial Nerves, General and Functional Diseases of the Nervous System. Philadelphia: P. Blakiston, Son & Co., 1893.

The first volume of this edition of Gowers' *Manual* has already been favorably reviewed in The Medical News, so that it will only be necessary to briefly call attention to the second volume, the revision of which, like that of the first, is not merely in name. The anatomy and physiology of the cranial nerves and of the pons and oblongata are particularly well presented; and the entire discussion of the structure and functions of the brain, including localization, is just of the character calculated to assist the student and general practitioner. Neurasthenia is not discussed from the American standpoint. Gowers believes "there is no more justification for regarding neurasthenia as a definite malady, as a disease due to a definite morbid process, or even as an affection characterized by a well-marked group of symptoms, than there is for adopting a similar course with regard to 'debility' among general diseases." While not fully in accord with this view, it is interesting and healthful to read his brief discussion of the subject of neurasthenia, at the same time having in mind the elaborate monographs of Beard and Cowles.

No matter what may be its excellences, some fault can always be found with a book. The numerous illustrations, although nearly all are well calculated to teach what the author intends, have not been well reproduced. In this, as in the first volume, a few affections, such as akromegaly, erythromelalgia, and angio-neurotic edema, which are now generally discussed in neurologic text-books and treatises, are omitted. This volume, as the preceding one, shows that the author is not merely a clinician, but also a practical pathologist, illustrations of his own pathologic work appearing in many places. Although by no means overlooked, bacterial pathology has not, perhaps, received full consideration. The present volume contains 1050 pages of printed matter, not including the index, and with the preceding volume makes a work of about 1700 pages. The clinical portion can scarcely be surpassed. The book continues to be what it has often been pronounced, the best text-book on nervous diseases in any language. As a practical work for students and practitioners it has held first place for nearly ten years, and will continue to do so for many years to come.

The Etiology of Osseous Deformities of the Head, Face, Jaws, and Teeth. By Eugene S. Talbot, M.D., D.D.S. Third Edition. 8vo, pp. 487. Chicago: W. T. Keener Company.

The fact that a book devoted entirely to the deformities of the head and teeth should have entered upon its third edition is an evidence that the dental profession has devoted a great deal of persistent labor to these subjects. While the work primarily thus appeals to a special class of practitioners, medical men cannot fail to be impressed with the fact that a thorough knowledge of the forms of the jaws, teeth, and related parts is essential to a proper conception of the causes of variations in the anatomy of the head.

The author rejects the opinion generally held that irregularities of the teeth and jaws are the results of local conditions. A number of original devices for measuring the hard palate are described, but the reflection cannot be avoided that this portion of the work would have been strengthened if the methods pursued by others, notably by Virchow, Turner, and Flower, had been noted. Want of uniformity in this and other matters in detail of craniometry make it almost impossible to apply the results obtained by one author to those of others. Usually we might have expected in a work of the character before us a judicial expression upon the entire matter of jaw-measurements. In like manner we would naturally look for some account of the contributions of such observers as Welcker and Aeby. The work is extensively illustrated.

A MANUAL OF INSTRUCTION IN THE PRINCIPLES OF PROMPT AID TO THE INJURED; Including a Chapter on Hygiene and the Drill Regulations for the Hospital Corps, U. S. A. By ALVAH H. DOTY, M.D., Major and Surgeon, Ninth Regiment N. G., S. N. Y., late Attending Surgeon to Bellevue Hospital Dispensary, N. Y. Second edition, revised and enlarged. 8vo, pp. xvi, 304. New York: D. Appleton & Co., 1894.

As this work is designed for the instruction of non-medical rather than medical persons, the author has very properly preceded the consideration of his subject by an elementary, but none the less useful, consideration of the bony skeleton, and a short sketch of the physiology of the different organs. The main object of the book is satisfactorily attained by that portion devoted strictly to "Prompt Aid to the Injured," and it can be studied with advantage by those officials of military and semi-military organizations whose duties render them liable to be the first to come to the aid of the injured.

In the section on poisons the use of the somewhat antiquated stomach-pump is advocated, although in the same paragraph the use of the stomach-tube as a substitute for the stomach-pump, when the latter cannot be obtained, is very well described; and it is certainly a much better method of emptying the stomach of its contents.

The author has included a section upon hygiene, and the usefulness of his work is greatly augmented by the addition of the drill-regulations for the Ambulance Corps of the U. S. Army.

AËRO-THERAPEUTICS, OR THE TREATMENT OF LUNG-DISEASES BY CLIMATE. Being the Lumleian Lectures for 1893, with an Address on the High Altitudes of Colorado. By CHARLES THEODORE WILLIAMS, M.A., M.D., Oxon, F.R.C.C. London: Macmillan & Co., 1894.

THE feeling of partial disappointment with which one finishes the perusal of this both timely and instructive volume is no doubt due to the too comprehensive nature of the title. The term "Aëro-therapeutics" implies much that is neither touched upon nor intimated in these lectures. On the other hand, atmospheric influences constitute but one of many factors discussed by our accomplished author. "The Climatic Treatment of Tuberculous Patients," while somewhat trite, would have been an accurate and therefore not at all misleading title for the work.

At the same time, we heartily thank Dr. Williams for thus aptly and freshly presenting a subject which is rapidly increasing both in interest and importance, and we may at some future day take occasion to discuss it more adequately than can be done within the limits of a brief and formal review. It may be added that the work is a valuable addition to our rather meager literature on the subject of climatic therapeutics.

NEWS ITEMS.

The Mississippi Valley Medical Association will hold its twentieth annual meeting at Hot Springs, Ark., November 20, 21, 22, and 23, 1894.

The Association is now in a more prosperous condition than ever before, and no efforts will be spared to make the meeting at Hot Springs not only the largest but the most interesting and profitable ever held. Many valuable papers by most excellent authors have already been promised.

A New Postal Regulation.—Existing postal regulations have been so amended that periodic bulletins issued by State Boards of Health shall be admitted to the mails as second-class matter and be subjected to corresponding rates of postage.

A Hospital for Tuberculous Patients, in Toronto, will probably shortly be established, a public-spirited citizen, Mr. W. J. Gage, having offered to contribute $25,000 for the purpose.

The Elms Hospital for Women, of Detroit, announces a course of fifteen lectures in connection with the work of its Training School for Nurses.

BOOKS AND PAMPHLETS RECEIVED.

A New Dynamometer for Use in Anthropometry. By J. H. Kellogg, M.D. Reprinted from Modern Medicine, 1894.

Arbeiten aus Dr. Unna's Klinik für Hautkrankheiten in Hamburg, 1892–1893. Sonderabdruck aus der Berliner klinischen Wochenschrift, Berlin, 1894.

Cataract. By T. Hilliard Wood, M.D. Pamphlet. Nashville: Cumberland Presbyterian Publishing House, 1894.

A Bacteriological Study of Four Hundred Cases of Inflammation of the Throat, Occurring in Diphtheria and Scarlet Fever, with Especial Reference to Pathogenesis. By John Lovett Morse, A.M., M.D. Reprinted from the Medical and Surgical Reports of the Boston City Hospital, 1894.

Expert Medical Testimony as Illustrated in some Recent Criminal Cases in the Courts of this City. By N. S. Davis, M.D., Chicago. Reprinted from the Chicago Clinical Review, 1894.

The Proceedings of the Third Annual Meeting of the Association of Military Surgeons of the United States. Held in Chicago, Ill., August, 1893. St. Louis: Buxton & Skinner, 1894.

Report of the Managers of Cooper Hospital, Camden, N. J. Camden: A. J. Milliette Publishing Co., 1894.

Fractures of the Body of the Jaw. By H. H. Vinke, M.D. Reprinted from the Medical Fortnightly, 1894.

Bulletin 65, April, 1894. Cornell University Experiment-Station. Veterinary Division. Tuberculosis in Relation to Animal Industry and Public Health. By James Law. Published by the University, Ithaca, N. Y., 1894.

Sixteenth Annual Report of the Presbyterian Eye, Ear, and Throat Charity Hospital. Baltimore, Md.: John S. Bridges & Co., 1894.

U. S. Bureau of Education. Catalogue of "A. L. A." Library. 5000 Volumes for a Popular Library Selected by the American Library Association and Shown at the World's Columbian Exposition. Washington: Government Printing Office, 1893.

Annual Reports of the Managers and Officers of the New Jersey State Hospitals for the Year Ending October 31, 1893. Trenton: The John Murphy Publishing Co., 1893.

Laparo-Hysterotomy: Its Indications and Technique. By N. Senn, M.D., Ph.D., LL.D. Reprinted from the American Journal of the Medical Sciences, 1893.

Proceedings and Addresses at a Sanitary Convention, held at Albion, Mich., December 6 and 7, 1887. Lansing: Thorp & Godfrey, State Printers and Binders, 1888.

Transactions of the Southern Surgical and Gynecological Association. Volume VI. Sixth Session, held at New Orleans, November, 1893. Published by the Association, 1894.

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ORIGINAL ARTICLES.

ORGANIC STRICTURE OF THE URETHRA.[1]

Methods of Treatment Recommended, with Indications for their Employment.

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IN this paper it is proposed to recount only such methods of treating stricture of the urethra as are believed to be most reliable and that at the same time offer the quickest and most permanent results. There is hardly any malady about whose treatment surgeons differ more widely than that of urethral stricture. Many authorities recommend some one of the various methods of dilatation, and condemn all other forms of treatment; others advocate the cutting-operations; and, again some make use of both dilatation and cutting.

At the very outset the patient must be carefully examined, to determine the position, caliber, resiliency, existing irritability of the stricture, and whether there be one or more. The condition of the bladder and kidneys must be ascertained, and a microscopic and chemic examination of the urine must be made to determine whether casts, pus, mucus or blood be present, and whether the urine contain albumin or sugar; also the quantity of urea present, and the quantity of urine passed during twenty-four hours.

The various methods employed for the eradication of stricture are gradual dilatation, continuous dilatation, modified rapid dilatation (which is a modification of the method known as divulsion), internal urethrotomy, dilating internal urethrotomy, dilating internal and external perineal urethrotomy, external perineal urethrotomy with a guide, and external urethrotomy without a guide, more generally known as perineal section.

Gradual dilatation is the treatment usually pursued for the relief of stricture, and is by far the safest method that can be used, as death has never been known to follow its employment. In soft, recent strictures, the number of permanent cures resulting from gradual dilatation compares favorably with that of those treated by internal urethrotomy, without incurring the risk attendant upon the latter operation.

[1] Read before the Medical Society of the State of Pennsylvania.

To perform gradual dilatation the character, position, and caliber of the stricture should be determined by means of a bougie à boule. The operator should begin, when the caliber of the stricture is large, with a conical steel bougie one or two sizes below the diameter of the coarctation, as there is usually associated with this condition more or less hyperesthesia of the urethra, and the onward progress of an instrument large enough to fill or distend the stricture gives rise to great pain, which causes more or less spasm, interfering with the advance of the bougie. The structures in the neighborhood of the obstruction are likely to be congested, chronically inflamed, and softened; if there is much distention the mucous membrane is easily lacerated, and more or less blood flows, and there is pain after micturition. In rare cases urine is absorbed into the system in consequence of abrasion or laceration, giving rise to urinary fever; but by beginning with a bougie smaller in diameter than the caliber of the stricture this complication is frequently avoided. The confidence of the patient is gained by the instrument producing but little pain, and after the bougie has been passed a few times much more rapid progress can be made than when force is used.

The rule that I have adopted is to increase the size of the instrument as the pain of insertion diminishes and as the amount of blood following the introduction is lessened in amount, or ceases. The instrument should not be introduced more frequently than every third day, and should be immediately withdrawn.

Both the urethra and the instruments should be put in a thoroughly aseptic condition. The urethral instruments should be washed in a solution of soda, subjected to heat, and dried on an aseptic towel before being used. Over the operating-table should be arranged a receptacle to contain water, to which have been added ten grains of boric acid to each ounce, and, by means of a rubber catheter, which has been sterilized by being immersed in a 1 : 1000 mercuric-chlorid solution, the urethra is irrigated, and a clean bougie that has been lubricated with an ointment composed of a dram of oil of eucalyptus, or boric acid, to the ounce of vaselin is inserted.

Palmer has shown the value of boric acid in sterilizing the urine, if administered internally when the patient is first placed under treatment. It should be given for two weeks, in doses of ten grains three times daily. Urinary fever is most

likely to occur at the beginning of the treatment, when the mucous membrane of the canal is in a condition of subacute inflammation, and somewhat softened. It is by employing boric acid that this condition is as a rule avoided.

Examination of the urethra by means of the endoscope will show how rapidly the inflammatory symptoms disappear in the neighborhood of the stricture when partial dilatation has been accomplished. This change possibly accounts for the rapid amelioration of the local symptoms of which patients so frequently complain; it takes place even after the instrument has been passed but a few times and the caliber of the urethra has not yet been restored.

The length of time that the treatment should be continued will vary with the condition of the obstruction to be overcome. If the stricture is extensive, about three months will be required to restore the urethra to its normal size. During this time the patient is to be instructed in the use of the instrument, which he should be directed to pass twice a week for a period of two months longer, after which he must use it once a week for a similar period, then once in two weeks, and finally once a month. The treatment may then be stopped, the individual being directed to return to the use of the instrument whenever there is an indication that recurrence is taking place.

By the method here outlined, of faithfully employing the instrument when necessary, the patient can always keep the urethra clear of obstruction, and need suffer from no further urinary difficulty. In cases of stricture of very small caliber a much longer time than the period here indicated will be required to bring about permanently good results.

Gradual dilatation may be employed for years, with every advantage to the patient, no symptom of obstruction making its appearance, and no indication of trouble from the prolonged use of the bougie.

When this method is pursued with recent strictures they frequently altogether disappear, and give no further trouble. Under such circumstances the further use of the instrument may be dispensed with.

Gradual dilatation is indicated in all cases of recent dilatable stricture in any portion of the urethra, and in all cases in which the stricture is not irritable, resilient or nodular. Firm, well-organized bands, situated within from three-and-a-half to four inches of the meatus require other measures for their relief.

In cases of diabetes and advanced disease of the kidneys gradual dilatation is far safer than any other method of treatment. This is likewise the case in those suffering from debility, disease of the heart, in persons who are broken down in health, or in the very old, especially if there co-exist chronic urinary fever.

In many instances I would have advised in favor of one of the cutting operations instead of dilatation, had not ample experience taught me that in case of a well-organized stricture urethrotomy is followed by recontraction about as frequently as dilatation, the patient at the same time running the great hazard that always follows a cutting-operation, with very little if any better chance of permanent benefit in his favor.

It cannot be denied that every urethrotomy is attended with more or less risk to the patient, whilst dilatation is perfectly safe; moreover, the farther the division of the stricture is made from the meatus the greater will be danger from the operation.

I have seen, in the practice of one of the most distinguished surgeons of this city, death follow from simple division of the meatus. This unfortunate result was due to shock, and occurred four hours after the operation, in spite of every effort to avert the catastrophe. Even in the hands of the most experienced operators the death-rate from internal urethrotomy is two in every hundred cases.

Taking the dangers of the cutting-methods into consideration, and also the fact that they are rarely followed by permanent results, it would seem to be obligatory on the part of the surgeon to give the uninformed the option of the safest course. If the cure from the cutting-operations were radical, and if the strictures did not recontract in a large percentage of cases, it would doubtless be the duty of the practitioner to allow the patient to run the risk of urethrotomy; but when we are assured that the result is by no means certain by any method now employed, we should not hesitate to recommend a course that, whilst it has its disadvantages, yet relieves the symptoms due to obstruction, and is absolutely safe.

Continuous dilatation. In resorting to continuous dilatation, the surgeon should begin with a very small instrument, a filiform bougie being usually employed. This must be allowed to remain *in situ* for three days, when, as a result of continuous pressure, the stricture relaxes sufficiently to allow of the introduction of a larger instrument. As a rule, the tunnelled catheter is the instrument to be used; this is passed over the whalebone and through the obstruction into the bladder. After this the surgeon is free to deal with the stricture in any manner that he may prefer.

There are two conditions under which this method of treatment is applicable: First, when there exists a stricture of small caliber, usually situated in the membranous portion of the canal, and generally accompanied by retention of urine; secondly, when,

although the stricture is tight, the patient is enabled to pass urine with sufficient ease to allow him to be prepared for a radical operation.

In the first instance, when a filiform has been inserted, a Gouley tunnelled catheter should, if possible, be threaded over the whalebone, passed through the obstruction, and the urine withdrawn. Should the effort to pass the catheter be unsuccessful the filiform bougie should be fastened so that it cannot come out of the urethra; if the symptoms are urgent the bladder must be aspirated. If the viscus is not overdistended the patient should be given half a grain of morphin and immersed in a hot bath, when he will have but little further trouble in passing his urine. The stricture can then be treated as the surgeon may deem most expedient.

Under the second condition continuous dilatation is employed simply to enable the operator to overcome the coarctation by the use of either gradual or modified rapid dilatation, or to enable him to enlarge the stricture sufficiently to pass a Syme's staff and thus facilitate the performance of external perineal urethrotomy, should this operation be indicated.

The failure of many practitioners to use filiform bougies successfully depends on various causes: these instruments, as sold in the shops, are more often than otherwise worthless; they are too stiff, not well rounded, and do not terminate in a proper neck, and are generally too large to be threaded over the smaller-sized catheters. The surgeon should make his own filiform bougies; a dozen properly constructed will, with ordinary care, last through several years of active practice. An important rule to follow is to employ the filiform before another bougie, a catheter, or any other instrument has been introduced into the urethra. If an instrument has been previously used it is of very little avail to attempt to pass a filiform, as failure will generally result. The operator must not be sparing of his time in these cases, as infinite patience is a necessary element of success.

It is well first to distend the canal by gently injecting a syringeful of carbolized oil before inserting the filiform, which has been rendered aseptic, and which is to be introduced into the meatus and passed slowly down to the obstruction, while at the same time the patient's face is carefully watched for the slightest expression of pain, which indicates that the onward passage of the filiform must cease. The slightest impediment to the passage of the bougie should warn the operator that he has proceeded far enough with the instrument, when a second should be introduced in the same manner, and the process thus repeated until six or eight whalebones have been inserted, when the operator very gently tries each in turn to see if he can find the opening in the obstruction; beginning on the left and passing to the right side of the patient, the surgeon naturally tending to work toward himself.

If the stricture be eccentric the opening will probably be found by this manipulation, when the instrument will glide through the contraction with little or no pain; and without force being required it will pass into the bladder and will be freely movable in the urethra.

These instruments are frequently made with a spiral twist at the end, on the supposition that the physician can more readily pass such a one should the stricture be eccentric. I have never had any use for a filiform of this description, as I have in every instance had perfect success with the straight instrument.

In order to successfully insert a tunnelled catheter over the filiform and through the stricture the catheter should be gently passed down to the obstruction, then transferred from the right to the left hand, and whilst the right hand puts the penis on the stretch the filiform is to be withdrawn about a quarter of an inch, and then both the filiform and the tunnelled catheter are to be carried together through the coarctation. This procedure prevents the catheter from cutting the filiform in two and assists in guiding the instrument through the obstruction.

This method of treatment is of great value as an adjunct to the employment of more radical measures. It is of service in relieving retention of urine due to strictures of small caliber, in preparing the canal for gradual or modified rapid dilatation, and in permitting the passage of a staff for external perineal urethrotomy.

If a stricture exists in the neighborhood of the bulbous or membranous portion of the canal, and is neither irritable, resilient, nor nodular, the employment of continuous dilatation should be followed by the gradual method, and if this is not practicable modified rapid dilatation is strongly recommended.

By *modified rapid dilatation* is meant a modification of the procedure generally known as *divulsion*, by which is understood the passing of a dilator so as to rupture the constricting bands. Divulsion of a stricture by Holt's instrument is generally condemned as dangerous to life, as has been abundantly proved by a large mass of clinical testimony; nor does it offer better results than safer methods.

The operation to which I have given the name of modified rapid dilatation is not in favor with many genito-urinary surgeons. Up to this time I have operated by this method on ninety-six strictures of small caliber situated in the membranous portion of the urethra, and I have had good results in all. In one instance only did the temperature rise above 100° F.; in this case the fever was doubtless owing to the interference of the patient, who removed the

catheter on the second day, in the face of explicit directions to the contrary.

Prof. John H. Brinton, who has been an advocate of this form of operation for many years, and who has operated upon a large number of patients, has had similar results. Patients thus operated on are confined to the house but four days, at the end of which time they are allowed to go about, with directions to report to the surgeon twice a week, in order to have a full-sized bougie inserted, which they soon learn to use themselves. The treatment is to be continued as advised when speaking of gradual dilatation.

I have not observed that strictures thus treated show any greater tendency to re-contract than those in which either internal or external urethothomy has been performed, especially if dilatation is continued afterward.

To properly carry out this method of treatment the patient is to be put to bed, the urethra is washed out with a 4 per cent. solution of boric acid and an aseptic filiform bougie is passed and tied in place. The patient is then given ten grains of boric acid three times daily, and the urethra is to be daily irrigated with boric-acid solution. At the termination of the third day the patient is etherized and the urethra washed with a 1 : 20,000 mercuric-chlorid solution. The Thompson dilator is then passed over the filiform and through the obstruction, when, by means of the thumb-screw attached to the handle, the blades of the instrument are slowly and very gradually separated to a very slight degree, and after remaining in this position for one minute are again approximated.

This procedure of alternate separation and approximation of the blades of the instrument is repeated, taking care each time to separate the blades of the instrument to a somewhat greater extent, until the stricture is enlarged sufficiently to allow of the insertion of a Gross dilator, which requires that the caliber of the urethra should not be less than 18 F.

The Thompson instrument is then removed and the Gross instrument inserted. In the same gradual manner the caliber of the urethra is brought to the full size of the canal, which has previously been ascertained by means of a bougie à boule. The time occupied in carrying out this treatment should be from *twenty to thirty minutes*.

Strictures so treated are stretched rather than lacerated or torn ; this is shown by the little or no hemorrhage that follows, and on examination with the endoscope two weeks later, the walls of the urethra will be found to be smooth and not ragged, as might naturally be expected if laceration had taken place.

After the Gross instrument is removed a full-sized bougie is passed, to ascertain whether all obstruction has been removed ; if this is found to be the case the urethra should be irrigated with a 1 : 20,000 mercuric-chlorid solution and a sterilized catheter passed and tied in place ; then a small quantity of warm boric-acid solution is to be injected into the bladder. The patient is put to bed ; the urethra and bladder are to be daily irrigated with a warm boric-acid solution, and on the fourth day the instrument is removed and a full-sized bougie is passed. The patient is allowed to sit up, and may resume his duties on the following day.

This method is applicable to the treatment of filiform strictures situated in the neighborhood of the bulbous and membranous portions of the urethra, and which are neither irritable, resilient, nor nodular, and which cannot be treated by gradual dilatation. It likewise offers the best chance when time is an object, as for instance, when the individual is about to undertake a journey or is about to be married. It should not be performed in the aged, nor in those suffering from disease of the kidney, urinary fistula, or abscess of the perineum. In many cases in which the stricture was resilient, the caliber very small, and a perineal section was indicated I have employed it primarily to facilitate the passage of the grooved staff, immediately afterward performing the cutting-operation.

It would surely seem that an operation that is so free from complications, attended with so little danger to life, and which at the same time produces such favorable results, with no greater tendency to relapse than is to be encountered after other methods, is entitled to a prominent place among the resources that the surgeon possesses wherewith to overcome obstructions in the bulbous and membranous portions of the urethra.

When it is observed that in performing modified gradual dilatation the stricture is dilated gradually, and that an effort is simply made to restore the contracted portion of the canal to its normal caliber, that it is not over-dilated, and that in conjunction with the operation the strictest aseptic and antiseptic precautions are employed, it will be seen that it differs very materially from the method of divulsion, which should become obsolete.

Internal urethrotomy should be limited to well-organized strictures situated within from three-and-a-half to four inches from the meatus. If they be of such small caliber that a urethrotome cannot be passed, they should be first cut on the roof of the urethra, from before backward, by means of the Maisonneuve instrument, and the constriction should be divided on the floor of the canal by the Gross urethrotome, which, being of the shape of a bulbous bougie, locates the constricting band with great exactness. Strictures of the meatus and of the neigh-

borhood of the fossa navicularis should be divided on the floor of the urethra, especially if they give rise to reflex symptoms.

Dilating internal urethrotomy, though very thorough, is not indicated in many instances. Some of the worst obstructions with which I have met have followed it.

Its sphere of usefulness is confined to those conditions in which the stricture is well organized, of long standing, situated within three-and-a-half inches of the meatus, and is either nodular or resilient. In the latter conditions it is the only operation that offers permanent relief; but unless the patient employs the bougie in the manner recommended when treating of gradual dilatation, the coarctation will be likely to re-form.

Dilating internal urethrotomy should not be employed in a case of ordinary stricture of the penile portion of the canal, unless this be complicated in the manner already described, as the operation is likely to be followed by a curvature of the penis, which may last for a period ranging from six weeks to a year, and is, of course, a source of great mental anxiety to the individual. What is far worse, however, is that the knife of the instrument cuts so deeply that an extensive division of the muscular fibers of the urethra follows, and as a result dribbling of urine after the act of micturition takes place; as the canal is unable to expel the last drops of urine, it slowly oozes from the meatus. This condition is permanent.

If it can be avoided, dilating internal urethrotomy should not be performed on persons suffering from impotence, neurasthenia, abnormal nocturnal losses, or sexual hypochondriasis. Very naturally, the incurvation of the penis and the dribbling of the urine produce very depressing mental effects on these patients, which are difficult to overcome. When these complications exist I much prefer to rely upon internal urethrotomy by the Gross instrument. I have resorted to dilating internal urethrotomy in forty-eight cases in which the conditions indicated were present, without a single death.

Combined internal and external urethrotomy is resorted to for the relief of nodular strictures of the penile portion of the urethra and of strictures of the bulbous portion of the canal. The object in opening the membranous portion of the tube is that in cases of nodular stricture situated on the anterior portion of the urethra, and which has been divided, the parts may be put at physiologic rest, and thus the indurated tissue of which they are formed is permitted to undergo fatty degeneration, atrophy, and absorption.

I have twice performed combined internal and external urethrotomy with success; on three occasions I modified it with equally good results. The strictures were situated about two-and-a-half inches from the meatus, and were nodular, resilient, and of very small caliber. By means of the Maisonneuve instrument they were divided on the roof of the canal, and the insertion of the Otis dilating urethretome thus permitted; the constricting bands on the floor were now freely divided and the caliber of the urethra brought to its full size. A silver catheter was then passed, fastened in place, and allowed to remain *in situ* for two weeks; temporarily removing it every third day in order to sterilize it. The urethra and bladder were daily irrigated with boric-acid solution. The induration around the seat of the stricture disappeared, and the patients recovered without the necessity for complicating the cases by the addition of perineal punctures.

In *external perineal urethrotomy by means of a guide* the membranous urethra is opened, the surgeon being guided in reaching that portion of the canal by either a Syme's staff or a filiform bougie. It is employed in cases of non-dilatable, resilient, nodular strictures of small caliber, of obstructions of the canal associated with fistulæ and abscesses of the perineum, and in conjunction with internal urethrotomy performed upon some part of the penile portion of the urethra.

External perineal urethrotomy without a guide, generally known as *perineal section*, is performed when no guide of any kind can be passed through the obstruction. It is usually necessary in cases of stricture of traumatic origin, of obstructions associated with fistulæ and abscesses, and of false passages, with retention of urine. It may be performed either by carefully dissecting down upon the urethra until it is found, and then cutting through the stricture, or by resorting to the Cocks or the Wheelhouse method.

With the aid of a modification of the Wheelhouse staff which I have designed I have been enabled to very materially simplify the operation of Wheelhouse. The modified staff consists of two blades terminating at one end in the ordinary hook, like that of the Wheelhouse instrument. At the handle is a thumb-screw, by means of which the blades of the shaft may be separated. An indicator serves to show the extent to which the blades have been parted. This instrument is passed into the canal until it comes in contact with the stricture; it is then withdrawn for a distance of a quarter of an inch, when, by means of the thumb-screw, the blades are separated and the instrument is set; the urethra is thus fixed and made prominent. After the skin is divided in the median line of the perineum, the surgeon, by a single incision, opens the urethra one-fourth of an inch in front of the contraction; the blades of the instrument are then brought into apposition, and the staff is turned so that the hook

engages the upper angle of the incision. The remainder of the operation is completed in the manner recommended by Mr. Wheelhouse.

Electrolysis. Of ten cases in which I attempted to treat strictures by this means, all did badly. In most, either urethritis, prostatitis, cystitis, or epididymitis followed, and the treatment was necessarily abandoned. In those wherein these complications did not arise there was no improvement. In one only was there slight benefit, and this was due to the gradual dilatation of the coarctation produced by the electrode. This method of treatment is therefore not recommended.

SOME PRACTICAL POINTS ON ETHER-ANESTHESIA.[1]

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IT is not the purpose of this paper to discuss the mooted question as to whether chloroform or ether is the better anesthetic. Nor is it the intention to discuss the entire subject of anesthesia by ether and to review the extensive literature pertaining thereto. The object is to bring up for consideration and discussion a few practical points selected mainly from personal experience.

At the outset I wish to devote some consideration to the Trendelenburg position in so far as it bears on the danger or safety of the anesthetic. It is a resort of so much value in some cases of abdominal and pelvic surgery that it will be permanently adopted for those particular operations. It is well, therefore, to consider in what manner the phenomena of anesthesia are modified by this position. At first thought it might seem to be the ideal position. Prompt lowering of the head is one of the measures generally recommended in treating cases in which dangerous shock results from the anesthetic. But it is one thing to use the position temporarily to supply blood to the nerve-centers, and quite another thing to adopt the position throughout the operation.

The experiments of Hare on the rabbit are instructive in this connection. When the anesthetized rabbit is placed in a position simulating that of Trendelenburg, there is such marked respiratory failure that death soon follows. This is due to the pressure of the abdominal contents on the diaphragm. We do not get such effects in man, probably because his abdominal organs are relatively small, and because his thorax is not nearly so conical as that of the rabbit. Still, it is well to watch the action of the diaphragm with unusual care when the patient is in this position. My experience leads me to believe that the position entails but slight additional dangers, provided the table be properly constructed. As usually constructed, the middle portion is so arranged that it can be raised into a double inclined plane. One plane supports the legs of the patient and the other supports the thighs and body, while the head rests on the horizontal portion of the table, thus forcing the shoulders into the angle and flexing the head on the chest.

I have seen dangerous interference with the respiration result from this faulty position. The thighs, body, and head should rest on a single inclined plane, which should be about four feet in length. In this posture the head assumes a position of slight extension, thus facilitating respiration. The body should be prevented from slipping down the incline by securing the legs or feet. The plan of using hooks against which the shoulders rest is a faulty one, as they interfere with the free action of the chest-muscles.

Coming now to the administration of ether, we at once meet with an objectionable feature that cannot be entirely eliminated, viz., the disagreeable sensations of the patient, which usually begin with the first inhalation and continue up to the point when consciousness is lost. These sensations are due to two factors. The irritation of throat and larynx is caused directly by the ether-vapor. The sense of impending suffocation is due to an asphyxial element caused either by holding the breath or by breathing the same air over and over again, or by both.

There is a great diversity of opinion as to the time that should be consumed in producing full anesthesia. Appliances have been used for insuring such rapid generation of ether-vapor that complete narcosis results in one or two minutes. This procedure is clearly dangerous. Reeves has demonstrated that if pure ether-vapor, in large quantity, be carried into the lungs of a dog by means of a tracheal tube, death promptly follows from failure of the heart.

Another method of very rapidly inducing anesthesia consists in causing partial asphyxiation by the almost total exclusion of fresh air. This is a popular method, and is the one generally recommended in Germany, where ether now bids fair to divide the honors with chloroform. The advocates of this plan claim that it is free from danger. It has the advantage of consuming only a small quantity of ether. It has the disadvantage of causing, as a rule, extreme distress to the patient.

By adopting five or six minutes as the average time for complete anesthesia the patient suffers little discomfort, provided that up to about the point at which consciousness is lost the open method be used, and the ether-vapor be added to the inspired

[1] Read before the Ohio State Medical Society, May 18, 1894

air in a gradual and uniform manner. After many carefully-timed observations, supplemented by subsequent inquiry as to the sensations experienced by the patient, I have adopted this rule: The amount of ether inhaled is increased from zero up to the full quantity in a period of three or four minutes. After reaching this point about two additional minutes are required.

I prefer to use the Clover Inhaler, and in the following manner: The indicator in the beginning points, of course, to zero. After a few inhalations of air the indicator is moved to allow a slight admixture of ether-vapor. Many such additional quantities are liberated at short but uniform intervals until the indicator points to F, which means that all the inspired air passes through the ether-chamber. If the ether is turned on in this slow and even manner it arouses no resistance on the part of the patient, and, with a little encouragement, his breathing will be full and regular. As already intimated, about three or four minutes are consumed in this gradual increase of the anesthetic. Consciousness is almost abolished, and the rubber bag is now inflated and applied for the remaining two or two-and-a-half minutes which intervene until anesthesia is complete. After this point I discard the bag altogether. While I regard the Clover Inhaler as valuable in producing anesthesia, I consider it far superior to all other appliances for maintaining this state.

We now come to one of the most important features of the subject. The patient is anesthetized, and the problem is how best and most safely to prolong this condition during the operation. Here it is that the greatest blunders are made, many times through ignorance, often from lack of skill and judgment. The ideal plan is to select the proper level for the anesthesia, and to constantly endeavor to keep the vacillations which necessarily occur above and below this plane within the narrowest possible limits.

The wider the departure from this plan, the more dangerous to the patient and the more disturbing to the operator. Everyone has observed instances in which the ether is pushed to profound anesthesia; then fresh air with no ether is allowed until slight resistance is noted, when the ether is again pushed almost to the danger-line. At one time the breathing is labored and stertorous to an alarming degree, and again the ether is withheld so long that vomiting may ensue, and the patient sometimes so far rallies as to make it necessary for him to be restrained until anesthesia is again rendered complete. The surgeon is annoyed, now by the resistance of the patient and now by the unnecessarily deep narcosis. The operation is prolonged and the amount of ether consumed is largely increased, thereby incurring unnecessary dangers during the operation and delaying the reaction afterward.

Fortunately it is seldom that the method is so vicious as this; but it is equally seldom that sufficient effort is made to keep the anesthesia at a constant level by continuous and carefully graduated inhalations of ether. Given in this continuous manner, the quantity of ether necessary to maintain anesthesia is surprisingly small, and it becomes less the farther the anesthesia is prolonged. In this connection it is well to remember that the reduction of bodily temperature which always accompanies the use of ether has been proved by Kapeller to vary directly with the depth of anesthesia and the amount of ether inhaled.

In desperate operations, undertaken with the idea of giving the patient the only chance of life, I believe that the result often depends as much on the careful and economic administration of ether as upon the celerity and dexterity of the operator.

There is a very important factor bearing on the quantity of ether consumed, which is entirely beyond the control of the anesthetizer, viz., the duration of the operation. Anesthesia has destroyed the necessity for the rapid and ofttimes over-hasty surgery of former times; but it has not created an excuse for the extremely deliberate and even leisurely methods sometimes adopted. Cases occur in which the patient might be enabled to endure anesthesia for a half-hour, but would succumb if the time were extended 50 or 100 per cent. Too often in fatal cases the exciting cause might be truthfully written "prolonged anesthesia."

Let us drop this digression and resume the consideration of maintaining the anesthesia at a constant level. The chief indications as to the depth of anesthesia are the conjunctival reflex, the degree of muscular relaxation, and the character of the respirations. As the changes in these symptoms indicate that the anesthesia is slightly insufficient or a little greater than necessary, the skilful anesthetist promptly increases or decreases by a slight amount the quantity of ether inhaled.

Now if the problem is complicated by the impossibility of knowing at any moment the ratio of ether-vapor inhaled, and by inability to change the ratio promptly, the solution can only be approximate—in other words, handicapped by this lack of precision, the anesthetizer is compelled to adopt a deeper level as his standard and to allow greater vacillations above and below this level. The chief value of the Clover Inhaler resides in the accurate control which it gives its manipulator over the amount of ether inhaled and the readiness with which it admits of changes in the quantity. Incidentally the ether-chamber is so constructed that the surface of vaporization is constant, whether it

contains little or much ether; consequently in a constant temperature the rate of evaporation is uniform. My object in dispensing with the rubber-bag is to avoid rebreathing of air. Buxton, one of the best authorities, strongly urges the superiority of this inhaler. He seeks to avoid the danger of the asphyxial element by entirely removing the inhaler after every fifth or sixth inhalation. One of the strongest claims made for the bag is that by furnishing warm air to the patient it lessens the danger to the lungs. This danger is equally well averted by keeping the air of the room warm. In fact, unless the room is warm, the evaporation is not sufficiently rapid to keep the patient properly anesthetized without the use of the bag.

In the next place I would call attention to a symptom which I always regard with apprehension. There is a point in the induction of ether-narcosis at which there is generally some muscular rigidity. This is, as a rule, but temporary. Occasionally it becomes intense, and persists after the abolishment of the corneal reflex. It is unnecessary to say that this is a condition of real danger; but in several instances I have seen a still more dangerous condition supervene. I have seen three cases in which death seemed imminent, and in each this condition of rigidity was followed by extreme muscular flaccidity and dangerous respiratory failure. Probably this state of affairs was due to some peculiar effect of the ether upon the muscle-fibers, causing over-stimulation, followed by extreme relaxation. Three cases are too few to justify reliable conclusions, and the supposed relation of cause and effect may have been merely coincident.

The final consideration is the importance of having a hot room in which to administer ether. The statement has been made that the inhalation of ether always tends to lower the temperature of the body. Let us for a moment consider the factors that cause lowering of temperature. The muscular system of the patient is at rest. It is often impossible for him to be more than thinly clad, and moreover a considerable portion of his surface may be moistened with water or other fluid, the evaporation of which chills him. If he were not anesthetized he would require, under these circumstances, a temperature of about 80° F. to make him comfortable. Other factors come into play when the ether is administered. The first effect of the anesthetic is to stimulate the circulation and drive an unusually large quantity of blood into the skin. This means rapid radiation of heat. Often the surface is bathed in perspiration, and the evaporation results in still further abstraction of heat. The evaporation of the ether reduces the inspired air to a low temperature. So we have unusual forces abstracting heat, not only from the surface of the body but also from the interior—even from the blood-current itself. On the other hand the economy is still further embarassed by diminished oxidation.

The lowering of temperature has a threefold bearing, increasing the danger of shock, increasing the danger to the lungs, and increasing the danger to the kidneys. Tait records an observation made years ago showing the effect of ether on the kidneys. The case was one of urinary fistula in which a ureter had become imbedded in the cervix. From a point on the infravaginal portion of the cervix the urine could be seen dropping as it was emptied from the ureter. The patient was anesthetized by ether in order that the fistula might be closed. After full anesthesia, when the operator was about to proceed he was unable to find the fistulous opening, as the urine had ceased to drop. After several days the attempt was again made, with the same result. A third time the attempt was made, using chloroform as the anesthetic, when there was no trouble. It is a common observation that little urine is excreted for some hours after ether-narcosis, though the blood-pressure is often increased. Of course ether should not be administered to one who has diseased kidneys. And it is well to be certain not only that the kidneys are sound, but also that they are doing their work well. A few days' delay, to get the kidneys in good working order by the use of diuretics, is often a matter of importance that is generally overlooked.

The danger of bronchitis is due to the tendency of the cold vapor to freeze the lungs. This can be largely averted by having the air of the room sufficiently warm. It is also dangerous to the lungs for the patient to be placed in a much cooler room immediately after the operation. The ether is eliminated largely through the lungs by evaporation from the blood-stream. In this process heat is required. If the inspired air is not sufficiently warm the heat required for the evaporation of the ether will be abstracted from the lungs.

The plan most generally adopted to secure the warmth of the patient consists in the application of heat in the form of hot water. This is not only inconvenient, but has the serious drawback of having the least utility when most needed. We must remember that the problem is really to lessen the abstraction of heat from the body. If we resort to hot water it is impossible to apply heat to more than a small area of the body. If the heat in this area is higher than that of the body the blood-current absorbs heat at this point and distributes it to other portions. As long as the circulation is good this process is well maintained. Indeed, it may be carried too far and produce heatstroke. But should a condition of shock arise, the circulation falters, and there is little or no means of dis-

tributing the heat, so that at the very moment when it is indispensable it is not available. By supplying heat in the form of hot air we have the patient enveloped in an equable temperature, and we furnish a constant supply of heat for the vaporization of the ether. In the regulation of the heat in conformity with the needs of the particular case I believe that we have the means of eliminating the two greatest dangers of ether, the danger to the lungs and the danger to the kidneys.

By the aid of a hot atmosphere I have seen ether used safely in cases of bronchitis, and I know that since adopting this method I have noticed decidedly more prompt reaction after the operation. The value of the plan was emphasized and forced on my notice in the case of a woman with an extra uterine pregnancy. She had not consented to an operation until after the third attack of pain and shock. The operation was undertaken while there was still some shock, and it was feared that this condition would be dangerously increased. The day was cold, and instructions had been given to have the room well warmed. When the operation was begun, the room had been heated to a high temperature, and as it was small it was thought unsafe to open windows. The operation was concluded with considerable discomfort to the operator and assistants. Contrary to our apprehensions, there was little shock, though free hemorrhage occurred during the operation. The idea forced itself upon us that shock had been greatly lessened by the heat of the room.

I did not adopt this suggestion on the evidence of the single case, but have tested it since in several hundred cases, and have come to the conclusion that a hot room is indispensable to the safe administration of ether. The temperature should be from 80° to 90° F., depending on the condition of the patient and the nature of the operation.

A RÉSUMÉ OF TWELVE HUNDRED EXAMINATIONS FOR LIFE-INSURANCE.

BY WILLIAM H. DUKEMAN, M.D.,
OF LOS ANGELES, CAL.

DURING the last three years I have examined over twelve hundred applicants for life-insurance. While making such examinations I made a study of each and every subject, no matter whether the applicant gave the appearance of good or poor health. Every applicant was stripped of all clothing to the skin, as far as the waist, and all were examined minutely, carefully, and systematically, according to a recognized method of physical diagnosis. A complete record was kept of every examination made.

Of the whole number, 164 were rejected, failing to pass the required standard of examination. There were, besides, 30 that were rejected by the medical directors of the respective associations on account of defective family history, from hereditary causes, or otherwise. Of these, the majority were good, sound risks.

The large number of rejections, which reach a little over 16 per cent. of the total examined, are accounted for principally as follows: Pulmonary tuberculosis, 76; heart-disease, 19; rheumatism, 14; asthma, 10; albuminuria, 11; hemorrhage from the lungs, 10; fistula in ano, 5; syphilis, 3; carcinoma, 2; renal colic, 4; hepatic colic, 2; chronic disease of the liver, 6; diabetes, 3; hernia, 3; intemperance, 7; emphysema, 3; chronic constipation, 7; chronic diarrhea, 3; and disease of the nervous system, 4. In some cases more than one cause is noted as a basis for rejection.

Among those rejected on account of their family history, although the applicant himself passed a satisfactory physical examination, the cause of rejection is noted as follows: For pulmonary tuberculosis in the family, 19; heart-disease, 6; kidney-disease, 6; carcinoma, 8; disease of the brain, 4; light weight, with a doubtful family record, 15 unknown, 15. For the last no reasons were given by the medical directors of the respective companies.

Of the whole number examined, there were 49 that had had one or more attacks of pneumonia since childhood. Of this number, 32 made complete recoveries, leaving no trace of the disease, while the remainder (17) gave evidence of more or less disease of the lungs, which was distributed as follows: In 4 the disease was *mainly* in the lower lobe of the right lung; in 3 in the lower lobe of the left lung; in 4 it extended over the greater portion of the right lung; in 2 over the greater portion of the left lung; in 1 it involved the upper lobe of the right lung; in 1 the upper lobe of the left lung; and in 2 the lower lobes of both lungs. While the lower portions of the lungs were mainly involved in 11 cases, there was, however, evidence of trouble in both apices as well.

As so many people come to California for their health it is readily understood how so large a number were rejected on account of tuberculous disease of the lungs, viz., 76.

Of this number I have noted as follows: In 14 the main trouble involved the left apex; in 20 the right apex; both lungs were involved in various places in 42. Fifty gave a history of heredity, while in the remainder (26) the disease was apparently acquired.

Of the 19 rejected on account of heart-disease, 13 presented mitral lesions, 3 aortic, and in 3 there were lesions of both valves. In 1 the apex was four inches to the right of the sternum and two inches below the line of the right nipple. In 1

there was a reduplication of sounds, two systolic to one diastolic sound, although the rhythm of the heart was preserved; the heart was displaced to the left of the normal. In most of the cases there was more or less cardiac hypertrophy. In only 7 was the heart in an abnormal position.

Of the 10 rejected on account of hemorrhage from the lungs, in 4 the hemorrhage had been recent, and there was evidence of progressive disease, while in the other 6 the hemorrhage was very slight and no evidence of disease was detected. The time that had elapsed after the hemorrhage occurred varied from four to ten years. I have also notes in which 6 applicants were approved who had had hemorrhage from the lungs more than ten years before, and have since been in good, sound health.

A notable feature in the personal history of all those having lung-disease was that they were perfectly well, except that occasionally they would state that at times they had a little indigestion and biliousness, and invariably would give negative answers to all inquiries concerning the diseases usually enumerated on the examination-blanks; a few would acknowledge having at times had a little bronchitis, but only when they should "catch cold," and a few more have a very dubious family history.

Of the 11 rejected on account of albuminuria, in 7 only did I find tube-casts; the other four seemed to be in the best of health, and have always been so. As this subject has received considerable attention of late by the profession, as regards risks for life-insurance, I believe the conclusion is that in many such cases in which no other evidence of kidney-disease exists the risks may be considered safe. While the condition may be considered a purely functional or normal and physiologic one, yet, however slight the proportion of albumin in the urine, as shown by Heller's nitric-acid test, I think it always indicates an abnormality of some kind; whether this be in the kidneys or due to faulty variations of blood-pressure elsewhere I cannot say.

Of the fourteen rejected on account of acute or inflammatory rheumatism, six had had five attacks; two had had four attacks; four had had three attacks; and two had each had one very severe attack. In eleven there were mitral lesions, and in two aortic. In only five was there deformity of the joints. While there were only fourteen rejected on account of rheumatism, I find that there were forty recorded that had one or more mild attacks.

Of the whole number examined thirty-eight had had one or more attacks of typhoid fever. Of this number four failed to pass on account of weakness of the heart's action.

Of the 1200, only forty-three were native Californians, and of this number only three were rejected, viz.: one for pulmonary tuberculosis, which was hereditary, one for repeated attacks of rheumatism, and one for weak heart due to three attacks of typhoid fever. The others (1157) were persons that came to this State either for health, wealth, or the comforts of mild climate, and were, as a whole, exclusive of those rejected, not of the most robust, sinewy, hardy, healthy constitution one finds in colder climates. Their muscles and flesh did not have that hardness and elasticity and firmness characteristic of the man of the temperate climate..

Of the 1200 I find that tuberculosis in some form existed in the families of 217; this number, however, is not the total, as many applicants could not give the cause of death of parents or grandparents, as in many cases death occurred before the birth of the applicant, or during his early life. In the majority of the 217 the results of the examination and the physique did not come up to the standard of those in whom there was no heredity of tuberculosis. Of this number I have noted that in 191 the color of the eyes was blue, while the hair was dark-brown or black in very many. In only a few was the color of the eyes gray, while the others had either brown or black eyes, with very dark hair. The lung-expansion in the majority of these came up to the standard, but on investigation I learned that a large percentage had practised taking full inhalations. In some of them the chest-expansion was greatly above the average, as a result of the long-continued practice, which in some had been carried too far, and had given rise to a harsh respiratory murmur on both inspiration and expiration, and a more or less breaking up of the air-vesicles.

The greatest expansion in all cases was seven inches. The man in whom this was present was a native of New York, six feet tall, muscular, well-built, and weighing 210 pounds. The tranquil chest measured 40 inches, on forced inspiration the circumference reached 44½, and on forced expiration 37½. The man was not an athlete, nor had he ever practised lung-expansion. The respiratory murmur was soft, breezy, and even, and the man was in every sense what one would consider a perfect specimen of health.

Of the forty-three native Californians, with but one exception the lungs were in a normal healthy condition, and the soft, breezy character of the respiratory murmur was so characteristic that in many cases I could almost foretell the nativity of the individual. The lung-expansion of these was, however, below the average, perhaps as a result of the easy-going life, especially of the Southern Californian, whose climate rather conduces to quietude, if not laziness. These facts show that great lung-expansion is not essential to constitute good, sound

lungs. Of how many came to this State for their health it was impossible to get a correct account. In the answers to questions propounded to applicants for life-insurance the good side of health is invariably given, but I should venture to state that fully one-half came here because of failing health of some kind, and whether those approved will live their expectancy of life or average time allotted by life insurance companies, time alone can tell.

The applicants varied in age from twenty years to fifty-five years. The average was a fraction less than thirty-four years.

While many of these applicants came to California for the benefit of their health, which had suffered either by sickness, constitutional weakness, or the overwork of an active business life, the question naturally arises: Did not the change of climate have a favorable effect? In many it did, but more time must elapse before it can be stated positively whether or not the benefits will permanently strengthen such weakened constitutions. The city, however, is not the place for these individuals to make their home.[1] Los Angeles is not a much healthier place for such persons to live than is Philadelphia. But in the country, in various places of California, in the mountains and at the sea-shore, where the air is aseptic, with our mild climate, and with proper care, under good medical advice as to mode of living in this climate, etc., many persons can be found whose health has apparently been permanently restored, and many more are greatly benefited for a time only.

VALVULAR DISEASE OF THE HEART AND CHRONIC RHEUMATISM.[1]

BY WILLIAM W. PENNELL, M.D.,
OF FREDERICKTOWN, OHIO.

BUT few years after entering on the practice of medicine it seemed to me that chronic rheumatism was a greater factor as a cause of heart-disease than had been pointed out by most authorities. Acting upon this idea, a rather systematic observation of such patients was instituted more than ten years ago, with the result of confirming the idea that cardiac disease was gradually developed as a complication in a large percentage of cases.

Regarding rheumatism as a diathetic malady, it is not strange that visceral entanglements should occur, especially in structures having a texture similar to that of the joints. Indeed, it is eminently proper to look upon rheumatism in any form as the expression of a diathesis or predisposition of the organism to a particular kind of inflammatory activity rather than as resulting from cold, exposure and dampness, as well as improper diet.

In the last ten years I have had every opportunity to observe the course of chronic rheumatism in a number of persons. In all, twenty-five[1] were under study, every one of the number being afflicted with chronic rheumatism from the beginning, there being no history of an attack of acute rheumatic fever. Observations were made weekly or monthly in each case. Eighteen patients gradually acquired heart-disease, seven thus far escaping. True, most of these persons were beyond middle life, and some were in the last quarter, periods in which chronic rheumatism is most likely to develop, also the period in which senile changes were to be expected as the result of a long series of years of hard labor and exposure, in addition to the gradual wane of vitality, with the consequent nutritive alterations in the circulatory system.

There is, so far as am aware, no anatomic reason why the rheumatic habit should not produce ravages in fibrous tissue, though it be located outside the articulations. Just why some should teach that the fibrous rings of the heart and the fibrous material of its valves and arteries have exemption in the chronic form of rheumatism is difficult to understand. But few authorities mention the possibility of complications of the sort; and then the cardiac disease is generally said to have its inception in the acute rheumatic attack that precedes the chronic in many individuals. Fewer still are the writers who ascribe heart-disease directly to chronic rheumatism, pure and simple; but all are willing to believe that the age of the patient at which valvular disease manifests itself has more to do with its production than any diathesis.

In my experience persons with chronic rheumatism for the most part sooner or later manifest some form of heart-disease, and the lesser number escape such a complication. Those in whom it appears being advanced in life, the cause is ascribed to senility and not to rheumatism. On the other hand, the majority of old persons that have never had rheumatism of any kind do not exhibit alterations of the heart more frequently than of any other organ or structure. And yet it seems scarcely possible for a person of seventy years with chronic rheumatism to escape without some lesion of the endocardium. Out of a great many patients affected with the acute disease it has been my fortune to see but few have pericardial or endocardial complications from a single or subsequent attack; but individuals subject to repeated or recurring seizures do for the most part become victims of heart-disease, more especially when in the interval between

[1] See article by author: "Where to Send the Consumptive in Southern California," in New York Medical Journal.

[2] Read by title before the Ohio State Medical Society, May 18, 1894.

[1] Ranging from thirty to seventy years of age.

acute invasions they suffer more or less with subacute or chronic articular inflammation.

These facts demonstrate the essentially diathetic nature of the disease, just as a case of acute pericarditis or endocarditis may be soon followed by acute articular rheumatism; or, as I have a few times seen, an individual with a chronic valvular lesion, evidently rheumatic in character, may acquire chronic rheumatism of the joints. This habit, if not hereditary, is quite readily acquired by some persons who seem to require less exposure, dietary errors, and dampness than other persons to induce an attack.

On the theory that rheumatism is the result of diathesis, it is reasonable that the same *materies morbi* which, by its presence or influence, alters the nutrition of the fibrous structure of joints, would, by constant circulation in the blood, gradually manifest itself in other fibrous tissues, especially in the heart, as this organ is unremittingly exposed to its influence.

The difference between acute and chronic rheumatism resides in the intensity and duration of the disease. They seem to be the same, modified by the patient's inherent power of resistance. Be that product of the individual peculiarity uric or lactic acid, or both, or whatever it may be, it has a predilection for fibrous and fibro-serous tissues. If one form is specific, the other is specific; the cause consisting either in the production within the body of morbid matter from interference with excretion from continued exposure to cold and wet or in the elaboration of toxins from improper food. These facts are far from establishing the specific nature of rheumatism. They more clearly demonstrate its constitutional character. The general type of the acute form is shown by the thoracic and abdominal complications that often occur, as well as keratitis and iritis, and by its affinity for the nervous system in the occasional production of chorea. So in the chronic variety. In this form the occurrence of thoracic and abdominal troubles due to a rheumatic cause are pretty well recognized.

In addition to these facts, it is reasonable to suppose that it has been the experience of other physicians, in common with myself, to have observed headaches in chronic rheumatic patients that were not due to disease of heart, liver, stomach, or kidney, but subject to the variations of barometric pressure and relievable only by anti-rheumatic treatment, dietary, sanitary and medicinal. Our experiences have, no doubt, coincided in that we have once in a while seen a case of chronic rheumatism persist for four or five years and then vanish as mysteriously as it came, leaving the patient little the worse for the visitation except for a stiff joint or so.

Our common experience is to see the gradual deterioration wrought by primary continuous chronic rheumatic disease; joints becoming weaker and stiffer; structural changes in ligaments, and capsules becoming more pronounced and accompanied by pain of variable severity, and yet the general health of the patient remain quite good, although he is unable to work and is hardly able to walk without crutch or cane. Chronic rheumatism is said to scarcely ever kill. This may be true. But it has seemed to me to do the reverse by inducing endocardial and arterial changes that result in stenosis, insufficiency or endarteritis, that indirectly do kill, or else I have had more than my share of coincidences, or am wofully shortsighted.

Complete recovery hardly ever occurs except in recent and mild cases which are removed from the conditions that feed the rheumatic habit, and thus receive permanent improvement, if not cure. Those that have had the disease for but a comparatively short time should not be discouraged with the idea of its incurability, but should rather have pointed out to them a possible means of escape, if not from the entire disease itself, at least from its ultimate consequences, by permanent arrest. For those cases that have become confirmed and intractable and have as yet shown no cardiac disturbance, as large a degree of immunity as possible should be secured against such complications. And when heart-disease has developed, its consequences should be avoided so far as they can be. In these latter cases we can secure the good effect of internal medication: namely, that directed to the cardiac complication, and that is the persistent use of digitalis.

Medicines do little good for chronic rheumatism. Its best treatment consists in massage, electricity, baths and diet. Elimination is the watchword in this disease. Massage, through its effect on the circulation favors excretion, as do baths, by stimulating the skin. The utility of diuretics and laxatives cannot be overlooked. The diet should be as nearly vegetarian as possible to preclude the introduction of toxic ptomaïns or their production within the alimentary canal. This paper is, however, not devoted to the treatment of chronic rheumatism, but rather to point out in a feeble way one of its most fearful consequences. The lesions of the heart do not differ in their symptoms from those due to other causes, and, like those arising in the acute disease, have a more favorable prognosis than those resulting from degenerative changes that are necessarily progressive.

Perhaps they are more amenable to arrestive treatment than the acute, as their growth or development is slow; but once developed to any degree they are permanent, their situation determining their gravity. If in the management of this disease these lesions could be avoided our work will not have been in vain.

CLINICAL MEMORANDA.

SOME INTERESTING SURGICAL CASES, WITH THE EXHIBITION OF AN ORIGINAL INSTRUMENT.[1]

By SCHUYLER C. GRAVES, M.D.,
of Grand Rapids, Mich.;
Visiting Surgeon to the U. B. A. Hospital and Surgeon to the Children's Home.

The cases that I have to report are: 1. Gould's extirpation of the penis, with perineal transplantation of the urethra, for malignant disease; and, 2. Phelps' operation for the cure of talipes, particularly that variety known as "talipes equino-varus congenitalis."

The instrument is a nephrectomy-clamp, devised for assistance during the operation of lumbar nephrectomy.

1. To me it has long appeared an insufficient and hence an unsurgical procedure to remove a portion of the penis for malignant disease. When we find malignancy connected with and limited to viscera elsewhere; when we find the breast, or the uterus, or the kidney, or the testicle, the subject of disease of such nature, we unhesitatingly remove the whole organ. It is best so to do; but with the penis; with an organ so fairly crowded with bloodvessels and lymph-vessels; with so many inviting nooks and crannies and pathways, where beckoning nymphs offer such warm hospitality to the individuals comprising the invading malignant horde, this procedure (extirpation) is very seldom done. It ought to have been done oftener in the past; it will be done oftener in the future.

The operation, which takes its name from Mr. Pearce Gould, of London, although it is also known as Gouley's operation (from Dr. Gouley, of New York), and which I had the pleasure of doing at St. Joseph's Hospital, Omaha, Nebraska, in June, 1893, is done as follows:

As the meatus is generally occluded, it is necessary to do a limited amputation before it can be possible to insert a sound into the urethra. Lateral tegumentary flaps of sufficient size are first made at the base of the penis; then a knitting-needle is pushed through the organ at its root (inside the flaps) and a rubber constrictor cast loosely around and below it. The penis is then cut away about one inch from the needle (on the distal side, of course), a proper-sized steel sound passed into the urethra as far as the prostate, or thereabouts, and the ligature tightened. All bleeding will now cease.

At this juncture a dissection is commenced along the rhaphe scroti, the incision deepening between the testicles, care being taken not to enter either tunica vaginalis, until the corpus spongiosum is exposed down to the scroto-perineal junction. Then the incision is continued deeply to about the center of the perineum.

At this point in the operation the urethra is entered at the peno-scrotal junction, the sound withdrawn, the corpus spongiosum dissected away from the corpora cavernosa and delivered in the perineal incision, from the bottom of which it will hang like a tail.

The corpora cavernosa are now dissected out even to their origin on the rami ischiorum. The dorsal and cavernous arteries will here need a little attention. There are two of each, but they can easily be caught and tied.

After the arrest of hemorrhage by ligature or torsion and the free use of hot water, the edges of the incision are brought together and sutured. The trailing corpus spongiosum is cut off a little more than flush and sutured *in situ*.

In disposing of this highly surgical operation, let me sum up its good qualities: 1. It is radical. 2. It is fairly easy of performance. 3. It is not particularly dangerous. 4. It concerns parts external to the triangular ligament, and, hence, does not involve the compressor urethræ muscle, thus allowing of as much urinary control as before the operation. 5. The incisions are made in the best possible fashion for subsequent drainage. 6. The outflow of urine takes place at the very bottom of the

Fig 1.

Showing absence of the penis.

Fig 2.

Showing perineal meatus.

[1] Read before the Michigan State Medical Society.

incision, thus avoiding wound-infiltration. As to bad points, I know of none.

The man on whom I operated passed his water unaided on the second day, and on the eighteenth he went to a photograph-gallery where the appended photographs (Figs. 1 and 2) were taken. One picture shows the absence of the penis, and the other the new meatus urinarius in the perineum. Eight months after the operation there was no return of the disease. The subsequent history has not been obtainable.

2. It is but a few short years since the lives of children were tortured by screw-apparatus, or more or less ineffectual work was done by subcutaneous section of tendons and fasciæ in the attempt to cure club-foot.

It is not my purpose to take up here the pathology of talipes. I wish, however, to state, most emphatically, that for all cases of congenital equino-varus in children about the age of five or under, the operation, *par excellence*, for their absolute cure, is the one which bears the name of Phelps.

This operation has its limitations. It is found wanting, as I myself have learned, in cases of long-standing, especially in the adult forms, in which osteotomies must be done; but in the young types it is all sufficient.

It consists in making a deep, free incision on the inner aspect and sole of the foot, commencing just in front of the malleolus, and cutting *everything*. Of course, a preliminary and subcutaneous section of the tendo Achillis is made.

This incision, together with forcible correction will be found sufficient, in the cases mentioned, to overcome almost any difficulty. The member, or members, should be forcibly *over-corrected* and put up in plaster, allowing the widely-gaping wound to fill with blood-clot and heal, after the method of Schede. In two weeks the casts should be removed, when much progress toward healing will have occurred. If, at the time of the operation, it is found impossible to more than correct, that is, impossible *to over-correct*—and I have seen cases in which, with all the cutting I deemed advisable, I could not do this myself—you will find that when the casts are reapplied, two weeks later, you can then bring about an over-correction. Of course, the success of this operation depends very much upon a strict observance of the laws of asepsis. The ideal, and hence the best, operation is the aseptic one; but I know that the operation will succeed even when healing by Schede's method fails to take place.

In this connection I desire it to be understood that I have made no particular mention of asepsis and antisepsis in these reports, because I have considered it unnecessary to do so. This body of the best surgical intelligence in the State of Michigan needs no reminder of what is now such an established fact.

I take pleasure in presenting photographs of a child with club-foot, taken just before and two months after a Phelps operation (Figs. 3 and 4).

3. During the course of a lumbar nephrectomy done a year or more ago I noticed that the patient was much shocked. The operation was a difficult one, and I had reached the stage at which the pedicle is to be tied. In order to do this I would have been obliged to add to my incision or to consume considerable time in securely ligating the stem. Either of these horns of the dilemma would have greatly added to the existing shock, thus very materially diminishing the patient's chances for life.

FIG. 3.

Talipes equino varus.

FIG. 4.

Result of Phelps' operation for talipes equino-varus.

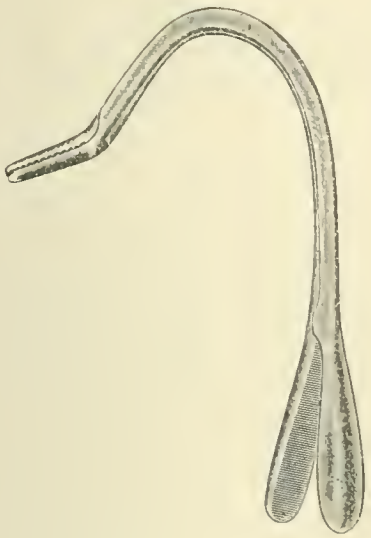
Upon the spur of the moment I seized a long pedicle clamp-forceps, guided it by sense of touch, clamped it,

and cut away the diseased mass. We put the patient to bed, and, after some hours of external and internal stimulation, she rallied, and, subsequently, underwent an uninterrupted recovery. The use of the clamp unquestionably saved the woman's life.

It was a new procedure for me. I had used the clamp in vaginal hysterectomies; but in such operations the arteries with which one has to deal are long and tortuous—they favor thrombosis. With the short, thick, able-bodied renal trunk or trunks, however, it is different. This form of clamping was a new, and, for the time being, rather an unpleasant experience; but it worked well. The clamp was removed in forty-eight hours. I immediately set about devising an instrument for use in similar emergencies, an instrument which would bring into play the new application of an old principle.

After many cadaveric nephrectomies and various modifications, the instrument was made to present the features which it now bears. (Fig. 5.)

Fig. 5.



Graves' nephrectomy-clamp.

It has the following weak points: 1. It is an instrument that will not have a very extended use, inasmuch as nephrectomies, particularly lumbar nephrectomies, are not common. 2. It causes a slough, which must, in time, come away, and thus prevents the immediate closure of the wound.

The following good points, I think, will speak for themselves: 1. It is easily, quickly, and safely applied. 2. By reason of its shape it can be included in the dressings and allowed to remain several days. 3. It is applicable to either side of the body, that is, to the pedicle of either kidney. 4. It is separable and smooth, and hence can readily be rendered aseptic.

In an emergency such as that described the instrument will, in my opinion, be found a life-saver.

The instrument can be obtained from the Detroit Pharmacal Co.

ABSENCE OF THE VAGINA, WITH HEMATOMETRA FROM RETAINED MENSES.

By JOHN C. DA COSTA, M.D.,
of Philadelphia;
Gynecologist to the Jefferson Medical College Hospital and to St. Agnes' Hospital.

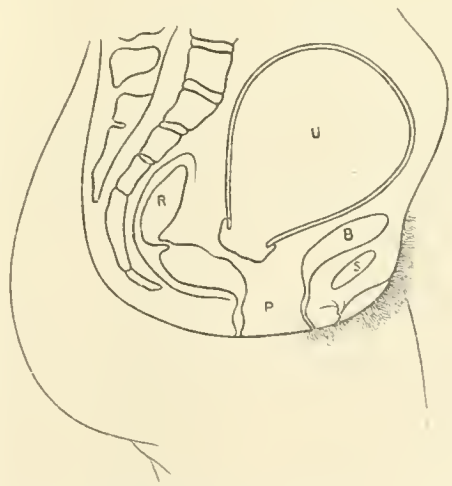
Atresia of the vagina, although not common, is still occasionally met with, but cases of absence of the vagina are very rare. The history and result of operation in the following case may, therefore, prove not uninteresting.

S. M., a negress, fourteen years old, was brought to me April 13, 1893, by her mother, who stated that the girl had been ill for some months. The girl was evidently losing flesh, and her face was expressive of intense suffering. Questioning elicited the statement that she had never menstruated and that all of her pain was in the lower part of the abdomen and pelvis. She had been perfectly well until the fall of 1892, when she was seized with severe abdominal pains, lasting three or four days, then passing away, but returning in three or four weeks. From that time she had never been free from pain, day or night, and the abdomen had been gradually increasing in size.

A look at the girl verified her statement. Her figure was that of a woman. The breasts were well filled out and the hips well rounded.

Examination of the abdomen showed the lower part to be occupied by a tumor about the size of a uterus in the fifth or sixth month of pregnancy, although the shape was different. The tumor was not the pear-shaped enlargement of pregnancy, but was nearly round, dipping well down into the pelvis; it gave evidence of fluctuation, and felt like a thick-walled cyst.

Fig. 1.



Condition before operation.

U, distended uterus. B, bladder. P, perineal body. R, rectum. S, symphysis pubis.

Examination of the vulva, or rather for the vulva, showed no vulva at all. The whole space from the urethra to the anus was a firm, fleshy mass, without any sign of either hymen or vagina. It was smooth, without any discoloration or bulging such as is seen in cases of

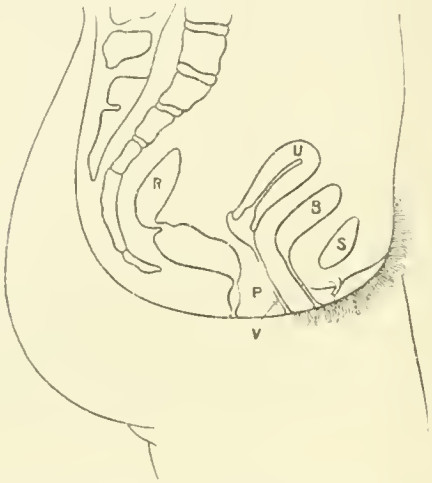
imperforate hymen, and was free from inflammation or tenderness.

Rectal examination showed, at a full finger's length from the anus, the presence of a fluctuating mass between the rectum and the bladder, and indistinctly there could be felt something suggesting a uterine cervix.

From the examination, a diagnosis was made of absence of the vagina with hematometra from retained menses.

An operation was decided on, and performed two days later, on April 17, 1893. With a large, slightly curved sound in the urethra and a finger in the rectum as guides, a good-sized incision was made transversely below and carried up parallel with the urethra, using the knife and scissors for cutting and the finger for tearing,

FIG. 2.



Condition one year after operation.

U, uterus. B, bladder. P, perineal body. R, rectum. S, symphysis pubis. V, newly made vagina.

until a distance of more than two and a quarter inches was reached, when the finger detected slight fluctuation. A good-sized trocar was then plunged through the tissues, the opening quickly enlarged with dilators, and the large mass of retained menses evacuated. Some of the matter had to be broken and detached before it could be dislodged or washed out by the antiseptic douche that was used.

Antiseptic douches were used daily for a while, and after two or three days a glass Sims plug (second size) was inserted, as the cut made was so large that the smallest plug dropped out. Larger plugs were inserted at intervals of two or three days, and in a short time the girl was discharged, well. I have seen and examined her within a month (more than a year after the operation), and she remains perfectly well, is plump, well rounded out, bright and cheerful, and menstruates regularly every month, without pain. She still wears the largest size Sims plug, and the opening shows no tendency to close.

The case presented certain peculiarities. One was the shape of the cervix. In a case of labor the cervix is obliterated, and the finger detects no cervix at all, but only a round hole in the uterus. In this case the shape of the cervix was preserved, and the part felt like a hollow cylinder, with an opening of perhaps an inch and a quarter in diameter and a wall about one-quarter of an inch thick. The cervix has never closed, as that of an ordinary uterus does after being emptied, but remains open, with an inside diameter of about an inch.

Secondly, the divided parts are not covered by healthy mucous membrane, as I hoped they would be, but appear very much like the inner wall of a cyst. The incision shows no tendency to close, as usually occurs in such cases.

It is fortunate that in view of the great accumulation and distention, no injury happened to the tubes, ovaries, or other adnexa of the uterus.

TOXICOLOGIC NOTES.

A CASE OF STRYCHNIN-POISONING.

BY LAMBERT OTT, M.D.,
OF PHILADELPHIA.

AT 11.45 A.M. an unmarried girl, twenty-five years old, took one hundred and twenty tablets, each containing gr. $\frac{1}{60}$ of strychnin sulphate. At 12.45 o'clock, or an hour later, I reached the girl and found her in severe general spasms, with clonic contractions of the extremities, extension of the head on the back with sufficient violence to throw her from a large arm-chair to the floor, where the contortions continued, their major force centering in extreme ophisthotonos, a sufficient interval being left between the body and the floor for a person to creep through. The eyes were turned up, and consciousness was apparently lost. I at once gave ether, to which the spasms yielded surprisingly soon, or else the period of relaxation had come. I then substituted chloroform, which I gave freely; also injecting $\frac{1}{4}$ gr. of morphin hypodermatically. All of these measures were required before the extreme rigidity subsided. In lifting the girl to place her on the bed her spine was found to be still rigid, but otherwise she seemed well relaxed. Dr. R. G. Stretch now joining me, we gave chloroform continuously for two hours, and every half hour $\frac{1}{4}$ gr. of morphin with $\frac{1}{50}$ gr. of atropin, only remitting the chloroform whenever the rigidity of the jaws and abdominal muscles relaxed, this being our sole guide as to the degree of narcosis necessary. All of this time the girl remained entirely unconscious, with the eyes divergent, the right pupil contracted and the left dilated, and later the right dilated and the left contracted. Her lower jaw was firmly set, the lower front teeth being nearly hidden behind the upper incisors, and only becoming visible during deep chloroform-narcosis.

After two-and-a-half hours' constant labor, thinking that the worst was over, and the general condition of the patient being good, we withdrew the chloroform temporarily, as the muscles of the jaw and abdominal walls were thoroughly relaxed, when suddenly, after a few moments' interval, there was a sharp and audible snap, caused by the teeth coming together; the muscles of the jaw and abdomen became rigid, and respiration ceased for a minute-and-a-half, with the development of deep cyanosis of the face and extremities and venous engorgement of the neck, while there was only slight rigidity of the limbs. This condition lasted so long that the appearance indicated what we supposed

was death. All seemed hopeless and useless; but as a *dernier ressort* several hypodermatic injections of brandy were made directly into the veins, and after what seemed an endless time the girl apparently relaxed in death, and the rigid jaw dropped. In a short time, however, a faint effort at inspiration was noticeable, and again, after a painful interval, there followed another faint inspiration, until gradually respiration returned, with a restoration of her natural color. In twenty minutes the breathing became stertorous, remaining so for ten minutes, when, suddenly, the lower jaw again became rigid, respiration partially ceased, some cyanosis developed, and asphyxia seemed imminent, but by pushing the chloroform danger was averted.

Then followed a period of relaxation of twenty-five minutes, when suddenly the lower jaw again became spastic and the respirations jerky, with the head drawn back; but this third attack, being much fainter than the previous two, gave us the comforting assurance that the poison had nearly spent itself, three-and-one-half hours having passed since the initiatory symptoms. After the fourth hour the girl lapsed into normal slumber, manifesting still a slight tendency to rigidity of the lower jaw, but otherwise her improvement was rapid. She regained partial consciousness at 8 o'clock in the evening, having been unconscious seven hours and forty-five minutes. A half-hour after the induction of chloroform-narcosis, in an interval of relaxation, she vomited spontaneously half a gill of mucus, which probably contained some of the strychnin not yet absorbed.

The lessons to be learned from this case are, in cases of strychnin-poisoning, to give chloroform freely, morphin and atropin in decided doses frequently, and never to trust the delusive interval of apparent relaxation until after at least four hours have passed; as long as the lower jaw and the abdominal muscles are spastic, or are relaxed and become suddenly rigid, sudden asphyxia may be induced by tonic spasms of the respiratory muscles. At no time after giving opium was there equal and simultaneous contraction of the pupils, nor in the one contracted was the narrowing permanent or "pin-head." The only time we found a weakened and nearly imperceptible pulse was during the first attack of asphyxia, when we thought her in apparent death, but during the spasms and in the intervals of relaxation the volume and frequency of the pulse were not materially altered. I was struck by the fact, however, that so grave a condition, each moment seeming about to bring death, was attended with so little change in the character of the pulse. The seven hours and more of unconsciousness were probably not due to the poison, but more likely to the chloroform and morphin, although unconsciousness set in with the first severe spasm before the anesthetic had been administered to complete relaxation. The following two days of convalescence were attended with no special drawbacks, other than the general soreness and aching, with some headache, anorexia and nervous exhaustion. On the first and second days the temperature rose to 101°, subsiding on the third day, after which followed rapid and complete recovery.

An emetic could not have been readily given when the patient was first seen, as, by reason of the severe convulsions, deglutition was impossible, and besides the patient had already absorbed the major portion of the poison ingested. Nor was it deemed wise to trust to the slow absorption by the bowel of potassium bromid and chloral, although these could have been thrown into the rectum while the patient was narcotized, and thus the first dangerous attack of asphyxia might possibly have been averted.

A CASE OF CARBOLIC-ACID POISONING; RECOVERY.

BY WALTER R. WEISER, PH.G., M.D.,
OF SPRINGFIELD, MASS.

ON the afternoon of June 16th I was called to see a strong, well-developed married woman, twenty-one years old, who had been found on the floor of her room unconscious and in complete collapse. The heart's action was weak and labored; the radial and carotid pulses imperceptible; the respirations shallow and at long intervals; perspiration profuse; the skin cold and clammy, and the pupils slightly dilated. The lips and mouth were found to be blistered, and further examination showed blisters upon the right arm and shoulder.

No one knew how long the woman had been in her room or what she had taken. I administered apomorphin hydrochlorate, gr. $\frac{1}{6}$ hypodermatically, with the result of inducing free emesis a few minutes later, the vomited matter having a distinct odor of carbolic acid. After another hypodermatic injection of strychnin sulphate, gr. $\frac{1}{20}$, I began the administration of magnesium sulphate by the mouth, alternating with olive-oil.

At this stage Dr. George D. Weston was called in consultation, and, together, we continued the treatment instituted, with occasional hypodermatic stimulation. After about four hours the patient began to regain consciousness. The reflexes were entirely abolished and there was almost complete loss of power upon the right side. She complained of no pain, but pleaded constantly for water. Urine of a blackish-green color was voided about six hours after the ingestion of the poison. The face was much swollen on the right side, and became more so during the night. On the following morning the parotid gland on the same side was found to be hard and extremely sensitive and as large as a chicken's egg. As the blisters showed that the saliva had drained from the right side of the mouth, it no doubt passed into Stensen's duct on the same side.

Upon questioning the patient, during convalescence, I learned that about seven drams of carbolic acid (95 per cent.) had been taken four hours before I first saw her. After drinking this, she says she remembers nothing until she found us working over her. Her recovery was uninterrupted. The day following the ingestion of the poison there was considerable retro-sternal and epigastric pain. The face remained swollen and painful, but the tumefaction rapidly yielded to applications of belladonna and mercurial ointments. The woman complained of numbness and tingling in the right arm and thigh, and marked anesthesia was noted; but this, with the loss of power, disappeared in the course of two or three days.

A coincidence in the case was the fact that for two years past the woman has been suffering with symptoms of cystitis, passing urine very frequently in small quantities, and always with pain. Since taking the acid the

urinary symptoms have wholly disappeared, and up to this writing there has been no recurrence. The internal after-treatment consisted in the administration of bismuth subnitrate and milk by the mouth and opium by the rectum, so that any possible favorable influence upon the vesical condition must have been due to the action of the acid in the process of its elimination.

The dilated pupils, the paralysis, the slow respiration, and the local effect on the parotid gland were of especial interest.

MEDICAL PROGRESS.

Successful Suture of the Divided Ends of a Ruptured Urethra.—ANDERSON (*Lancet*, No. 3692, p. 1372) has reported the case of a man, thirty-two years old, who in jumping backward off a bicycle alighted straddlewise on the hinder wheel. The accident was followed by much pain and great swelling and discoloration of the perineum from extravasation of blood into the tissues. There was no bleeding from the urethra, and no attempt had been made to pass urine. An endeavor was made to introduce a catheter, but without success. Ether was then administered and an incision made into the perineum in the middle line, exposing a large cavity filled with blood-clot. After clearing away the extravasation the urethra was found to be completely divided a short distance in front of the triangular ligament, the two ends being separated by a distance of about an inch. An effort was made to pass a catheter in the ordinary manner, but this was found impracticable, owing to the difficulty of fixing the vesical end of the torn canal. A soft No. 10 olivary catheter was then introduced through the wound into the upper opening and pressed on for some distance into the bladder. The other end of the instrument, which had previously been trimmed to a convenient shape, was then passed through the wound into the lower urethral opening and brought out at the external meatus. This done, the two torn margins of the canal were united by catgut sutures, and the wound was dressed with iodoform. Four days later the catheter was withdrawn, and as it had become encrusted with phosphates, the patient suffered a good deal of pain. A No. 8 silver catheter was then passed into the bladder under an anesthetic. The instrument was retained in place for ten days, the tube being kept clear by occasional injections of a solution of boric acid. After the withdrawal the evacuation of urine could be effected without difficulty, and nothing further was required beyond the occasional passage of a catheter. The man was dismissed four and a half weeks after the operation, and no tendency to the occurrence of stricture showed itself.

To Clean Soiled Slides and Cover-Glasses FUNK (*Centralblatt für Bakteriologie und Parasitenkunde*, xvi. Bd. No. 3, p. 113) recommends the following course of procedure: The slides and covers are placed for some time in oil of turpentine, the one being separated as far as possible from the other. They are then placed in a beaker and some ten or fifteen grains of potassium chlorate and an ounce of hydrochloric acid are added. The beaker is covered with a plate of glass to prevent the escape of the vapors of chlorin, and is heated over a water-bath until the covers are decolorized. The glasses are now rinsed with hot water and placed in a mixture of equal parts of pulverized soda, talcum and sifted sawdust, sufficient water being added to make a mushy mass. The beaker is heated over a water bath for half an hour and is frequently shaken. The glasses are now again rinsed with hot water and a small quantity of dilute hydrochloric or acetic acid is added. They are finally rinsed once more with hot water or with ether and alcohol, and then dried with a soft cloth.

The Treatment of Ruptured Kidney.—BRIDDON (*Annals of Surgery*, vol. xix, No. 6, p. 641) reports four cases of ruptured kidney, and gives the following indications for treatment: In cases of moderate severity the treatment will be mainly expectant; absolute rest, a bland fluid diet, and the application of ice-compresses will frequently lead to a successful issue. If an aseptic process should ensue, as indicated by rigors, sweats, and elevation of temperature, a lumbar incision should be made, and be followed by irrigation and drainage of the infected cavity. In cases in which the peritoneum is lacerated, generally as a result of more severe injuries, and in which the condition is rarely recognized until an abdominal section is made in search of the cause of the acute anemia, suspected to be due to internal hemorrhage, the indication in most cases is to supplement the section by nephrectomy.

THERAPEUTIC NOTES.

Successful Employment of Hot Baths in a Protracted Case of Cerebro-spinal Meningitis.—AUFRECHT (*Therapeutische Monatshefte*, August, 1894, p. 381) has reported a sporadic case of cerebro-spinal meningitis in a man, twenty-five years old, which failed to yield to ordinary measures, and in which a condition of somnolence had existed for ten days, and a fatal issue seemed unavoidable. The temperature was not elevated and the pulse was small and frequent, and it was decided to give the patient a daily bath at a temperature of 104° for a period of ten minutes. After the first bath some improvement was observable, and the sensorium gradually cleared, the rigidity and painfulness progressively subsided, consciousness returned, the functions of the sphincters were resumed, articulation became possible, and the internal strabismus that had been present disappeared. When, after nine baths had been given, the bathing was discontinued, the symptoms manifested a tendency to return. Three additional baths were given, after which the symptoms remained permanently in abeyance and the case went on to permanent recovery.

Potassium Permanganate for Diphtheric Angina.—At a recent meeting of the Société Médicale des Hôpitaux, CATRIN (*La Semaine Médicale*, 1894, No. 34, p. 346) reported the topical employment of potassium permanganate in the treatment of a small number of cases of diphtheric angina. A solution of 1 to 200 was employed, and the applications were made every two, three or four hours, according to the severity of the case, by means of a bit of cotton wrapped around a wooden stick. The treatment also proved efficacious in cases of angina due to streptococci.

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SATURDAY, SEPTEMBER 8, 1894.

THE FORMATION OF NEW ORGANS TO REPLACE OTHERS DESTROYED, REMOVED, OR WANTING.

WE have already published an account of the remarkable case of Prof. J. SOLIS-COHEN in which, following total extirpation of the larynx, there was developed a structure answering the purpose of a larynx, with its vocal bands, and giving all the essential qualities of speech.[1] We have also called attention to the most noteworthy case of HUSELTON,[2] in which, as a result of attempted suicide, the epiglottis was severed from its normal connections, leaving the larynx uncovered, and in which a perfectly functional substitute was spontaneously formed *de novo* from another part of the pharyngeal wall.

Doubtless inattention to or ignorance of the possibility of such new-formations may have led to the overlooking of their frequent existence.

To these startling facts we now may add the following interesting account of an organ found in the sheep by MR. SYDNEY D. ROWLAND, B.A., of Downing College, Cambridge, England, and published in the *Journal of Anatomy and Physiology* for April, 1894:

[1] See THE NEWS, July 23, 1892, p. 98; February 18, 1893, p. 195; March 17, 1894, p. 281.

[2] See THE NEWS, June 30, 1894, p. 722.

The conditions of interest met with are the persistence of a patent foramen ovale, together with some arrangement for valvular protection, and the peculiar features of such valves.

In the specimen which first attracted attention the following was the condition:

The foramen ovale was circular in outline, and measured 2.5 cm. in diameter. The valve consisted of a membranous flap 3 cm. in length and 2 cm. in diameter, and was attached round about four-fifths of the opening, the antero-inferior one-fifth of which was free from the valve and uniformly rounded. The free edge of the valve was prolonged at intervals into fibrous cords, which were attached in groups of four or five to the auricular wall just above the line of origin in the mitral valve. These cords were not inserted directly into the wall of the auricle, but into small muscular columns, in precisely the same way as the chordæ tendineæ of the atrio-ventricular valves are inserted into the papillary muscles. The presence of muscle in these columns was proved by teased preparations stained and examined microscopically. . . .

Two other examples of this arrangement were found, but not so marked as in the specimen first observed; thus some of the cords apparently hung quite freely in the auricular cavity; these, of course, might have been attached in a similar way to the preceding during life, but as the specimen only came under examination after having been dissected by one of the members of a class, no positive statement can be made. The disposition of the valve was in all cases such as to prevent the flow of blood from the left into the right auricle; this is consistent with what we know of the relative pressure in the two auricles, that in the left being the higher.

Six other specimens were obtained exhibiting peculiarities, but as these were only modifications of one general plan, they may be described collectively. They may be divided into two classes—those in which the foramen ovale was open but small, and those in which the membrane which normally closes it was perfect, yet weak. In the first of these classes, of which there were two specimens, the aperture was about 1 cm. in diameter, and was prolonged into an oblique funnel lying in the auricular septum, as is usual in cases of open foramen ovale; but in nearly all cases distinct cords were present, connecting the free thin (left) edge of the funnel to the auricular wall. In the second class similar cords were present, but proceeding from those parts of the membrane which were weakest.

In all the cases, then, we have an arrangement of cords, or of cords and muscles, when the play of the valve is large, which would obviously take an important share in securing the efficiency of the valve by preventing reversion into the right auricle. In those cases in which there was no opening the cords would play an equally important part in strengthening the membrane, and by limiting movement, diminish the chance of the rupture by sudden shock.

From what structures normally present in the heart can we derive this arrangement of valves and cords? That the specimens form a progressive series in complexity of the same fundamental structure will, I think, be admitted. The embryonic septa naturally suggest themselves as the basis from which the valve might have

been derived, but Born has shown that the foramen ovale is an entirely new development in the atrial septum, the septum superius completely fusing with the septum intermedium. Rokitansky has described the closing of the foramen ovale at birth as taking place by the formation of a fenestrated membrane, the fenestræ of which subsequently close up.

But if this closure was imperfect the condition observed might very easily and simply result by the persistence of that portion of the membrane that lies between neighboring fenestræ, as the cords, and that part of the membrane in which the fenestræ closed completely, as the valve-flap. The funnel-condition is easily explained by supposing that the lower border of the foramen grows to meet the upper, the cords retaining their original position of insertion. . . .

The great point of interest in connection with these variations is, however, their almost exact resemblance to the condition of things met with in the atrio-ventricular valves. In both cases we have identical arrangements for preventing eversion of the valve-flaps, viz., chordæ tendineæ, and musculi papillares. But in the case of the mitral and tricuspid valves we have ample ancestral precedent to fall back upon as an explanation; such is not the case in the valves here described. It seems, then, that such a complicated and highly specialized arrangement can arise without any ancestral precedent; why, then, quote it as an explanation of the specialization in the atrio-ventricular valves, as would surely be done by anybody who was asked to explain the origin of the mechanism?

Similar results can only be produced by similar causes; we have, therefore, to look for such conditions as are common in the ontogeny of both valves as a cause which could have produced them.

It is not yet possible to say what these causes are, and the question must be left in this position. . . .

The citation of such cases at once arouses the interesting thought that a profoundly suggestive field of scientific investigation may be opening before us. We have, by the almost dogmatic insistance of the Darwinian theory, grown to consider organic structure as rigidly bound up with heredity and "ancestral precedent." Is it not possible, nay, does not any one of the foregoing cases prove that this so-called scientific truth must be modified? May not the same causes that produced a structure in the first instance and in the undifferentiated or embryonic tissue, under some circumstances again bring forth *de novo* a substitute organ in the older and more differentiated tissue?

If so, what are the laws and conditions of the new growth? When may we look for it to arise and how may we possibly stimulate or modify its production? The possibility of such neoplastic formations, benign, indeed, and in a very new sense of the word, may become less repugnant to our thought if we remember the regrowth of lost parts in many of the lower orders of animals; the substitutive or vicarious function of organs with consequent change of structure, in man, in case of lesion of the specific organs; the growth of morbid neoplasms; but especially the remarkable effects of the "natural" healing-powers in cases of peculiar or extensive injury of one or more parts. The formation of a new epiglottis is only another step or variation of the seemingly intelligent or ingenious power at work in the other processes. Many would at once say that the creation of an organ in the fetus differs from substitutive or reparative creation in the adult only in the added difficulty of differentiation of tissue in the adult.

Following the law of analogy, we would naturally suppose that the secondary or substitutive creation will be more likely to arise, more easily provoked, or aided, in proportion to the patient's youth. The older the subject the less plastic the organ-forming tissues, and in a general way the less differentiated are they. The serous, mucous, and vascular tissues, the moist structures generally, may reasonably be expected to yield more examples of this formative power than those in which the nutrition and interchange of molecular matter are hindered by their dryness, etc. Nervous structures are especially plastic, the recreation of destroyed nerve-fibrils being a well-known fact. The position of an organ or tissue may also prove a factor. The nearer to the source of nutrition, or to the centers of vital activity or nervous control, the more readily perhaps will the tissue yield to the action and influence of the reparative or recreative forces.

EDITORIAL COMMENTS.

Newspaper Medicine.—The daily press is creating quite a sensation upon the announcement of the treatment of diphtheria by means of toxins isolated from cultures of the diphtheria-bacillus. If our newspaper friends had followed the investigations that have been going on in this department of science for the last four or five years, or had taken the pains to have consulted any intelligent medical man who kept himself informed on the progress of his art, there would have been no occasion for the sensational reports that have been published, and that can do only harm, just as occurred in the instance of tuberculin. Now the essence of the recent ferment is that a number of Koch's pupils, including Behring, Kitasato, Wassermann, Brieger, and Ehrlich, have for a number of years been at work upon the subject of isolating from cultures of diphtheria-bacilli a substance that they hoped would be capable, both of conferring immunity to diphtheria and of curing the developed disease, and from reports in current medical literature it would

appear as if some measure of success had been attained in these directions. The line of work is no longer novel, and is comparable to that pursued by Pasteur these many years with hydrophobia; by Ferran, nearly ten years ago, and by Haffkine and others more recently with cholera; by Koch with tuberculosis; by E. Fraenkel with typhoid fever; by the Klemperers with pneumonia; by Tizzoni and Cattani with tetanus. The results, however, cannot yet be said to be final or conclusive, and it will be well to withhold a verdict until sufficient data have been collected on which an intelligent opinion can be based. The outlook for specific medication in the not very remote future is rather encouraging than otherwise, but there is no reason to believe that true scientific interests will be furthered by the periodic sensational discoveries of our friends, the newspapers.

The Duty on Alcohol.—It appears that somewhat unintentionally Congress in its recent tariff-legislation has removed the tax on alcohol for use in medicine and the arts. There is, however, good ground for fear that at the next session steps will be taken looking to the repeal of the clause by which this desirable change has been brought about. It is therefore incumbent upon those interested in the use of alcohol for the purposes exempted from taxation—and medical men are to no small degree concerned—to offer organized opposition to any modification of the law as it now stands.

REVIEWS.

Text-book of Abdominal Surgery. A Clinical Manual for Practitioners and Students. By Skene Keith, F.R.C.S. Ed., assisted by George E. Keith, M.B., C.M. Pp. 508. Philadelphia: J. B. Lippincott Co., 1894.

This work is of exceptional interest, as it is drawn from the personal observation of the authors. It is also based to a large extent on the life-work of Dr. Thomas Keith, "a surgeon whose early results—about 15 per cent. mortality after ovariotomy—were considered at the time so remarkable that they were described as 'doubtful,' and whose later results have been called 'phenomenal.'" We must congratulate the authors on the position they have taken against the too indiscrimiuate use of the exploratory incision, although we feel, as our means of diagnosticating abdominal complications are so limited, that we are justified in using every resource in our power for a correct solution of a difficult problem. That tapping or aspiration, which they advocate in cases of doubtful diagnosis, is not always harmless, even under the most rigid asepsis, is the opinion of our most advanced celiotomists, who do not believe that the advantage to be gained is always commensurate with the risk run. For the intraperitoneal treatment of the pedicle the authors advise "faith" in the use of the cautery, which in their opinion is safe, and which is attended by less liability to subsequent bleeding. They also assert that the great majority of surgeons use the ligature "because it requires less care and delicacy of manipulation." The chapter on appendicitis is particularly instructive, the authors taking the present stand that all apparent cases of typhlitis and perityphlitis, or nearly all, are in reality due to inflammation of the appendix; although they acknowledge that they are not prepared to say that a "simple typhlitis or perityphlitis can never exist without the appendix having been inflamed." They also advocate the repair of cervical lacerations as a cure for inflammation of the uterine appendages when this seems to have been the cause of that disease. They relate their failures as well as their successes, and, what is more, they give the therapeusis employed in each case. They believe that electricity employed according to Apostoli's method is useful in uterine fibroids, as avoiding mutilation, especially in the young, and that it may often do good in inflammations of the uterine adnexa. Altogether they have given us a well-written book, interesting not only to the general student, but to the specialist as well.

Where to Send Patients Abroad for Water-Cures and Climatic Treatment. By Thomas Linn, M.D. (The Physician's Leisure Library.) Detroit: G. S. Davis, 1894.

This little brochure of seventy-six pages gives much precise information regarding the principal health-resorts and mineral springs of Europe. The author has had many years of experience in this work, and has personally visited most of these resorts; his opinion on these points is, therefore, especially valuable. As he spends half the year in Aix-les-Bains and the remainder in Nice, his judgment of these two important health-resorts should be the best that exists.

The alphabetic index of maladies, with the names of resorts that are suitable in their treatment, will be found of great convenience. The avoidance of technical terms and the employment of simple language enable the physician to place the book in the hands of laymen about to undertake a journey abroad.

Essentials of Diseases of the Eye, Nose, and Throat. Part I. Refraction and Diseases of the Eye. By Edward Jackson, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic, etc. Part II. Nose and Throat. By E. B. Gleason, B.S., M.D., Surgeon in Charge of the Nose, Throat, and Ear Department of the Northern Dispensary of Philadelphia. Second edition, revised; 124 illustrations. Philadelphia: W. B. Saunders, 1894.

The treatment of diseases of the eye, in connection with those of the nose and throat, is a suggestive departure in text-books. Part I of the second edition of this book is revised here and there textually, and now and then an addition has been made; but as it is confined to principles and settled facts, it has not been much enlarged. Its clearness of style and firm grasp of the subject commend it highly. Part II has been enlarged by the insertion of new matter. It is a good introduction to its subject, but perhaps advises operation too freely.

Chronic Joint-Disease. (Some Preliminary Papers.) By John Ridlon, M.A., M.D., Chicago, Ill.; and Robert Jones, F.R.S.C.E., Liverpool, Eng. Pp. 179, Index v. Chicago: C. J. Burroughs, 1894.

This volume is intended to supplement the existing text-books on orthopedic surgery. In many portions of the book an ultra-conservatism is displayed that is

scarcely in keeping with the spirit of modern surgery. On the other hand, it is stated that excisions "in children should never be performed," and that amputations "are always indicated as life-saving measures," statements which, if accepted, would prove that Fergusson and MacCormac have lived in vain. The work is not without merit, but is chiefly of value as illustrating the experience of two surgeons with the methods of a deceased practitioner of great mechanical ability.

INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, UNITED STATES ARMY. *Authors and Subjects.* Vol. XV.: UNIVERSIDAD–VZOROFF. Washington: Government Printing Office, 1894.

THE profesion is to be congratulated upon the appearance of another volume of this most stupendous work, now nearing completion. Probably another volume will complete the catalogue proper, but a voluminous appendix will be required to include the literature that has appeared since the work was begun. Dr. Billings cannot be too highly commended for his devotion to his task, and the United States Government for its generous support.

SOCIETY PROCEEDINGS.

AMERICAN ACADEMY OF MEDICINE.

Nineteenth Annual Meeting, held at Jefferson, N. H., August 29 and 30, 1894.

THE President's Address was delivered by DR. GEO. M. GOULD, of Philadelphia, who spoke upon "Charity-organization and Medicine." He showed that the relation existing in common between the medical profession, the dependent classes, and the general community is much more intimate than is supposed. Of the dependents not one is devoid of medical relations, and of many the medical relation is the chief one. Every dependent is a patient of the community, and he is also a patient of the physician. At least as a citizen every physician has his interest in this class. The design of the paper was to get physicians to recognize the important and effective means and method of therapeutics offered by the charity-organization societies. As commonly practised charity is sin, it is selfish charity, almsgiving which doubly curses both giver and receiver. Its result is to increase, not prevent, the evil. Charity-organization aims to make benevolence scientific. Mendicity is mendacity. Mendicancy, in all its forms, is not the result, but the cause of poverty. The charity-organizer says: "1. Don't help frauds. 2. Help so as to make future help unnecessary. 3. Don't hire people to be miserable. 4. Prevent dependency." Attention was called to the fact that, first of all, it is necessary for the medical profession itself to clean house or to square itself with these principles. The hospital-abuse is a disgrace to the profession. In London, there were during 1893 in the 181 hospitals about four million out-patient visits. A similar abuse prevails in all large cities. Many of these patients were certainly able to pay something for medical services, and the younger members of the profession without hospital-positions were injured; the indiscriminate free treatment increases the evil itself, and the energies of the profession are absorbed in the gratuitous curing of disease instead of preventing it. Selfishness lies at the bottom of the evil—not benevolence, and money given to hospitals without certain provision against indiscriminate free treatment is likely to become a curse to humanity instead of a blessing. The different classes of dependents, the pauper, the orphan, the beggar, the crippled, the blind, the criminal, the epileptic, the idiotic, the insane, etc., were briefly reviewed, and the principles of treatment as advised by the charity-organization societies was considered. The evils of idleness among asylum-inmates was especially criticised. The remarkable results of the treatment of epilepsy at the Bielefeld Epileptic Colony and the Magull Home were praised, and the good that may be hoped to result from individualization of these cases, from colonization, and home-treatment was set forth. The evils of institutionalism, the growing danger of large grants of money to private institutions, the everlasting work at curative medicine and the indifference to preventive medicine were also pointed out.

DR. BAYARD HOLMES, of Chicago, presented a paper entitled "The Sources of the Defective, Dependent, and Delinquent Classes." He stated that the young child is essentially dependent for a period varying inversely with the stage of civilization in which it lives, and after a period of independence, the individual in old age becomes again dependent; these conditions must be considered normal. Independence refers to that condition of mental and physical vigor which secures a useful and productive working-power in the individual.

When, from any cause, a man cannot support himself he becomes a defective; any considerable defect produces a condition of abnormal dependency. This proposition forms the foundation for the following classification:

1. Normal dependents: children, aged.

2. Abnormal dependents: (1) defective dependents—(*a*) congenital, (*b*) acquired; (2) voluntary dependents not defective; (3) involuntary dependents not defective.

3. Delinquents: (1) defective or essential criminals; (2) accidental or educative criminals.

Dependent children constitute one of the most hopeful of all dependent classes. The non-asylum method of care adopted in Australia was considered in this connection. With the other extreme also, the aged, great abuses have crept in among the institutions established for their care. The abnormal dependents made by far the greater claim upon the State for support. Some of the cases are brought about by heredity, but by far the greater number are acquired; thus institutional or city tenement-house life is causative of the child-defective. The defects that are the result of disease appeal to medical men. Less than 20 per cent. of the blind of the United States acquire their blindness in adult life; and the same may be said of the deaf-mute. One source of the defective class has not received the attention of physicians that it ought—those made so from railway injuries. One railway trainman out of 113 was killed and one other out of every 10 was injured in 1892. And the competitive system of our shops is producing equally fearful results.

The voluntary able-bodied defective reaches that state because he finds he is paid better to tramp than to work. As to the involuntary able-bodied dependents, it is of the greatest importance that physicians should examine into the causes that lead to their development.

Of the criminal class, 45 per cent. are essential criminals, or criminals from defect; the remainder are criminals accidentally.

Criminals have increased in the United States between 1850 and 1890 a little more than twice as rapidly as the population; and most of this increase is to be found among the crimes against property.

The paper closed with the exhortation for all to study the diseases of the State that produce the conditions considered.

DR. CHARLES MCINTIRE, of Easton, Pa., read a paper upon "The Importance of the Study of the Medico-social Relations of the 'Retrogressives' to the Medical Profession."

He grouped his statements around several propositions.

1. The necessity of affording asylum-restraint or treatment to so many of the classes under discussion also makes necessary the employment of physicians. Consequently, a fair proportion of medical men obtain their livelihood, either in whole or in part, through services rendered to retrogressives.

Statistics to show the precise number could not be obtained, but one physician out of every eighty-nine in the State of New York is giving his time to the care of the insane, and is receiving a salary therefor; and at least one physician out of every twenty-five in Pennsylvania is receiving some salaried compensation for professional care of retrogressives.

2. The physicians who are receiving a salary for services given to the retrogressives are few in comparison with the number who are, in an official position, freely giving their services to the same kind of people.

There are at least 69 hospitals in Pennsylvania, and 128 other charitable institutions; to most of these medical services are rendered without any money-return.

3. Closely associated with the last proposition is the complementary statement that a large number of people are willing thus to accept this gratuitous service from the physician.

About one out of every ten of the entire population of the State of New York was a beneficiary patient either in the hospitals or dispensaries of that State in the year ending September 30, 1892.

4. As service is the highest qualification of the physician, and service is only rightly so called when it is helpful, the true solution of the problems involving the facts stated must include the helping of the person served. All plans should be judged by the results obtained from this standpoint. It was stated that the important questions growing out of these propositions were not receiving organized scientific investigation by the profession, and a hope was expressed that such a study should be made.

DR. HENRY LEFFMANN, of Philadelphia, contributed a paper on the "Relations of Food-adulterations to the Dependent Classes." He pointed out that very little trustworthy literature on this topic is obtainable. It is obvious that extended statistical study in connection with analytical data will be needed to show in detail the results of impure food, but it cannot be denied that anything that diminishes the digestibility of food or its nutritive value will be of disadvantage to those who are restricted in their means of living. In addition to the actual injury to health, it must be considered that adulteration (the term being used in its widest sense) diminishes the commercial value of food, without diminishing, materially, the cost.

Oleomargarin is an example of the damage brought about by a well-developed system of adulteration. The substance is sold to the consumers as butter and at the price of butter. The poorer classes do not get the benefit of its cheapness, but pay the price of a better article, so that independently of actual unwholesomeness, the cost of living, in proportion to the actual nourishment obtained, is increased. The presence of small amounts of metallic poisons in canned goods is also a serious matter. Dependents, defectives, and delinquents are doubtless largely instances of imperfect development, and to prevent such conditions the highest nutrition and purest food should be available.

An article upon "The Provident Dispensary in England," by DR. H. WEBSTER JONES, of London, Eng., was then read by the Secretary. He related that dispensaries were instituted in England as a response by the College of Physicians to the taunt of the Company of Apothecaries, that its members were "too proud to visit and too avaricious to bestow gratuitously" their services among the sick poor. The retort of the physicians to this was that "visits and advice profited little when medicines dispensed by the apothecaries were so inert and so exorbitant in price as to make their procurement useless even if possible." The Apothecaries' Company, organized by a separation from the grocers, not only grew in numbers, but shrewdly pushed its way into business and importance, employing many methods not to be admired to bring this about.

In 1687 the College of Physicians, in view of the admitted suffering of the poor, decided that its members should give advice "gratis," when asked, to the indigent within London and seven miles around. The apothecaries refused to coöperate, and, as a result, the first dispensary was established in 1699, in Warwick Lane, near Newgate, upon the principle of "voluntary contributions from the charitably disposed members toward a joint stock for the purpose of preparing and delivering medicines to the poor at rates near the intrinsic value."

This and the other early dispensaries were designed, according to their claim, for "the meaner sort of tradesmen, their apprentices, the servants, and the poor." To claim relief under the latter division required a certificate from a clergyman, churchwarden, or overseer of the poor of the district in which the patient lived.

In 1734 Seymour writes that the "dispensaries had been for a long time given up." It was shown that the leases expired in 1725, and were not renewed. This is the same year that Guy's Hospital was founded for the gratuitous treatment of the poor. St. George's followed in 1733, the London in 1740, and the Middlesex in 1745. These hospitals afforded advantages to those holding appointments, and caused them to use their influence for the out-patient department of these hospitals as opposed to the Provident Dispensary, especially if located near their hospital.

The first dispensary contained the germ of the Provident Dispensary: 1. Self-help. 2. Discrimination between proper and improper recipients of relief. 3. Contributory subscriptions. To these has been added some form of mutual assurance.

The next efforts were put forth in the Midland counties in 1823. The plan contemplated: 1. A list of honorary members as subscribers. 2. Free and independent members who paid for their advice. 3. Charity members, properly selected. 4. The extremely poor, depending on the parish. These institutions have continued in the "provinces" up to the present time with very little variation from the original type.

In London the tendency is toward free relief. The essayist quoted an opinion that habits of dependency were fastened upon hundreds of thousands by this indiscriminate free relief, and the London hospitals are thus converted into schools of pauperism. Twenty years' discussion of this evil has developed nothing better than the Provident Dispensary system.

A plan of such a system approved by a meeting of English gentlemen was outlined, a cardinal feature of which was, that it was to be self-supporting, and no public appeal was to be made to the contributors.

To show the extent to which free medical relief is carried in London a quotation was made from the "*Lancet* special supplement for the Metropolitan Hospital Sunday Fund," published June 2, 1894, wherein it was shown that, during the previous year 103,585 in-patients had been treated, and 3,871,290 out-patient visits had been made.

DR. J. A. SPALDING, of Portland, Maine, read a paper entitled "Is Blindness Increasing in the United States, and if so, What are the Best Means of Prevention?" He stated that no trustworthy census of the blind has ever been obtained in America. The intermingling of persons blind in one eye (as if that defect had anything to do with total blindness) with those who are blind in both eyes, and consequently the only ones who are blind, has produced endless confusion, as has been proved in the State of Maine, where personal acquaintance with one-eyed blind enrolled amongst the blind has led to curious blunders.

An effort was made by Dr. Spalding long before the last census was taken, to insist upon the census-enumerators obtaining the names of all the blind people in each district, in order that a house-to-house visitation later, by competent physicians, might obtain more perfect results. So far as ascertained, this was not done, or if done, no good has come from it.

The only way in which a correct tabulation of the blind might have been obtained having been so far neglected, we have no right to claim that blindness is on the increase, for the plain reason that we have no standard to start from. Nevertheless, the number of blind being considerable in every State, we should bend our energies to the question of prevention. Accidents might be prevented in the dangerous employments, such as stone-quarries, foundries, or machine-shops, by the use of shields of protecting glasses, but in many such establishments the overseers object to the men using such means, on the ground that they cannot see sufficiently well through them to do good work. Possibly legislation might here be useful.

A prolific cause of blindness lies in infantile ophthalmia. Legislation in that respect serves the very useful purpose of compelling many people to bring their infants so affected under early treatment, but it fails lamentably in teaching physicians how to treat them skilfully. It also fails in not compelling every midwife and every physician and nurse to use aseptic injections before the delivery of the child, and aseptic cleansing of the eyes directly after the child is born.

One of the most serious obstacles to the prevention of blindness lies in the lack of education sufficient to diagnosticate or to treat diseases of the eye by even many excellent practitioners, and a still more disheartening danger lies in the enormous abundance of partly skilled ophthalmic surgeons, who, fresh from an all too-brief post-graduate course, establish themselves as specialists in diseases of the eye in the small country towns, hoping to gain an easier living than by following the slower path of general practice. That this is no exaggeration is illustrated by the fact that Dr. Spalding had within four weeks seen two totally blind infants of about six weeks of age, and a third with extensive ulcerations of the cornea, produced by the unskilled knowledge of three such physicians in three separate localities. Even general practitioners could have done no worse.

Although the necessity of post-graduate schools is not denied, yet they ought not to grant diplomas after such brief instruction. If ophthalmology is the exact science that it is claimed to be by its practitioners, it cannot be learned in a few weeks, and everyone knows that the ophthalmoscope is not to be handled with skill in that brief time. There are too many ophthalmic surgeons who have never dissected an eye.

Dr. Spalding thought that the American Ophthalmological Society ought to raise a voice of protest against the granting of diplomas to practise as ophthalmic surgeons inside of at least three months, whilst six months would be better still.

The argument of the paper was that blindness could be better prevented by the education of well-skilled experts in diseases of the eye than by legislative means.

DR. BENJAMIN LEE, of Philadelphia, contributed a paper on "The Prevention of Blindness." In considering the question of the defective classes and the means for diminishing their numbers, it is appropriate to treat not of the absolutely blind alone but also of all who suffer from such degrees of defective or perverted vision as in any way render them less productive to society.

The State will not do its full duty in this regard until, through its sanitary authorities, it supervises the life of the individual from the cradle to the grave, and banishes every enemy of life except old age.

In the State of Pennsylvania the census of 1880 showed that blindness had increased during the previous decade more than five times more rapidly than the population. This is partly to be accounted for by the fact that the increase in population was largely due to immigration, and that the immigrants, belonging to the Slavonic and Italian races, rarely employed physicians in parturition. Hence ophthalmia neonatorum went unnoticed and unchecked. This is known to be a preventable disease. The duty of the State to prevent it by the enactment of suitable laws, and by the provision of medical relief for the destitute, and by checking its

spread in public institutions, is very clear. It is probable that one-third of the blindness now existing could thus be entirely prevented. This, however, is but half the duty of the State. Eyes originally sound are ruined in school by methods and conditions that are entirely avoidable. Among these may be noted the holding of the book too close to the eye, the use of fine print in school-books, the too-prolonged use of the eye, insufficient and badly managed lighting, use of the eyes too soon after convalescence from the exanthemata, the use of polished blackboards, irritation of the conjunctiva from chalk-dust, and many others. The State should make the office of school-director one of more responsibility and hedge it about with greater restrictions. The position should no longer be the prize of the ward-politician. The State should instruct both school-director and teachers as to their duties in regard to the health of the pupils. It would be well to have a woman on every school-board. Hours of eye-study should be diminished, and more teaching should be done by illustrated lectures. Finally, more care should be taken to stamp out the infectious diseases which so often leave impairment of vision as their sequel.

The State has a very definite and positive duty, not only for the prevention of the increase of this large class of defectives, but for the absolute abolition of one of its divisions and the notable diminution of all.

Dr. Lucien Howe, of Buffalo, N. Y., next read an article on "The Present Condition of Legislation for the Prevention of Blindness." He contended that with ophthalmia neonatorum, the cause of one-fifth of the blindness found in our asylums, the need of precautionary measures is only too apparent. Moreover, the loss of eyesight from this disease is preventable in the very large majority of cases if treatment is begun early enough. A delay of even a few hours may condemn the helpless child to a life of blindness. Hence the effort instituted by the New York State Medical Society in 1891, and continued by the American Medical Association in 1893, to secure legislation throughout the United States which should direct that infants presenting symptoms of ophthalmia neonatorum be placed at once under the care of a competent physician, with penalties for failure to do so. New York passed such a law in 1891, and since then similar legislation has been secured in Maine, Rhode Island, Minnesota, Ohio, and Maryland within the past year also. In Louisiana such a measure passed one house of the legislature, and in Illinois, Indiana, New Jersey, and North Carolina committees have been appointed by the State Medical Societies to take up the work. At recent meetings of the State Societies of Pennsylvania and Iowa strong resolutions were adopted in favor of legislative action, and in Alabama, Arkansas, California, Colorado, Connecticut, Georgia, Kansas, Kentucky, Michigan, Missouri, Nebraska, South Carolina, Tennessee, Vermont, Washington, and West Virginia, leading ophthalmologists have expressed their readiness to coöperate in the effort to secure such a measure in their respective States. The prospects, therefore, may be considered good for a quite general enactment of such legislation, and, it may be hoped, in consequence, with a material check upon the ravages of ophthalmia neonatorum.

Dr. Helen C. Putnam, of Providence, R. I., read a paper on "Physical Training as a Reformative Agent." She classified the causes of crime as cosmic, biologic, and social. Criminals are classified as: (1) Criminals by passion, a solitary crime occurring in a life of integrity; (2) recidivists, subdivided into criminals having a tendency to insanity, alcoholism, epilepsy; criminals by environment, either occasional or habitual; criminals in any environment. It is within the limits of the uncompleted attempt of anthropology to discover a criminal type to say that the criminal is of a low organic structure, and of a low level of intellection, suggesting the precocious astuteness of some children, savages, idiots, animals. His mental and moral anomalies exist in a rudimentary state in normal children and adults. Modern criminology theoretically and statistics practically demonstrate the futility of punishment in curing or preventing this social disease. The problem of crime is one of development and education. The ideal of institutions for criminals should be to return to society citizens trained to become useful members. Pioneer reformatories are introducing methods to educate mentally, develop morally, and equip with marketable skill to earn an honest livelihood. Dr. Wey, of the New York State Reformatory, has proved the need of physical treatment in upbuilding citizens from vitiated material. He assigns to the gymnasium dullards, certain of the semi-invalided, malingerers, the very nervous, boys in a sluggish or debilitated condition. Some subjects of experiment had had school, industrial and military training in the reformatory for one or two years, with no "appreciable progress." With these classes of criminals results are more satisfactory than those obtained from any other method. The aimless, shuffling gait, and the ox-like bearing give way to erect carriage, bright eyes, keener mental action, and greater alertness in the work-shop; the moral tone improves, and anti-social instincts and physical insensibilities disappear, both being characteristic of the criminal, and the latter being the basis of his "psychical analgesia"—the most fundamental peculiarity; 77 per cent. are recruited from the indifferent pupils of our public schools. The "tiny eye and tongue and pen-wagging muscle" are not the only avenues of approach to centers of cerebral activity, as Dr. Wey's work shows, under the greater difficulties of age and criminal tendencies. Physical training in reformatories and colleges is beginning at the wrong end. Gymnasia for adults are customarily under the direction of physicians. That the more impressionable frame and condition of children may benefit, it is no less necessary that there be school-physicians to guide these early formative and reformative attempts to successful issue. In Paris one hundred and fifty physicians are appointed to the public schools.

Dr. George G. Hopkins, of Brooklyn, N. Y., then read a paper upon "The Evolution of Surgery." He noted that the first dawn of the science of surgery is discovered among the Aryans; the earliest records being among the writings of the Hindu Brahmins, from 2000 to 3000 years before Christ. It may be inferred, from the fact that these books prohibit human dissections, that dissection of the human body was practised earlier. The Vaidya, or medical students, were instructed by a Garu as to the best means for "aiding the wounded and deformed." The period of study was seven years. Not more than twenty were permitted to attach themselves

to one instructor at one time; the teaching was oral and clinical. They were instructed in operations on the bladder, the eye, the ear, and the nose, and the treatment of deformities, and, we may infer, in other operations as well.

The Buddhist monarch Asoka, in 500 B.C., caused an edict to be inscribed on the native rock at Gazerat directing that hospitals be established on all the highways of his kingdom. These were to be supplied not only with a resident physician, but were to have a resident surgeon as well. The Buddhists did not invent anything, but readily absorbed the learning of the Brahmins. Nearchus states that Alexander, in his invasion of India, found the Hindoo physicians far more skilful than the Greek, and it is probable that all the medical knowledge of the Arabians was derived from India, and many think that Greece learned from Arabia.

Hippocrates, denominated the "father of medicine," must have derived much of his knowledge from earlier writers. His "bath" embodies the sentiments subscribed to by the Hindoo student two thousand years before his day. He gives many surgical truisms in his third book, besides writing several distinctly surgical books. In the reduction of many dislocations we have not to this day improved upon the methods of Hippocrates.

Seventy-five years later Aristotle contributed to the literature of anatomy, in many instances with the study of surgery in view. Herophilus, of Alexandria, was an anatomist of great ability. He practised dissections on the human body; upon the living as well as the dead, criminals being given him for the former purpose. The names of many anatomic parts in our present nomenclature were of his selection. The burning of the Alexandrian Library was a great blow to the progress of surgery.

Medical and surgical learning next centered in Rome. Aulus Cornelius Celsus flourished there in the first century of the present era. He combined the teachings of Hippocrates and those of the Alexandrian school. Mages, a surgeon of Rome at the time of Celsus, invented a double cutting gorget for incising the neck of the blader in the operation for stone.

Galen, 130 A.D., seems rather to have been a compiler and selector of other men's ideas than an originator, and in this he was more useful to the human race than many an originator. His works furnished the material for the text-books for 1200 years. He advised the ligature of arteries in severe hemorrhages. The new Alexandrian Library, which arose on the ashes of the old, in 640 A.D. gave to the Saracens, who captured the city, many works on medicine which were translated into the Arabic, taking the light back to the East, while the Occident lay in darkness for 900 years. Rhazes was the greatest of the Saracen surgeons. A knowledge of surgery found its way into Europe through the Moorish occupation of Spain.

Ambroise Paré, the father of modern surgery, was born in 1517. He rediscovered the use of the ligature, and so made surgical science possible. It required 200 years for the profession generally to accept his teachings.

The discovery of anesthesia opened the way for the development of modern surgery. McDowell's ovariotomy; Sir J. Y. Simpson's discovery of acupressure; J. Marion Sims' operation for vesico-vaginal fistula; Amusat's device of torsion of the arteries; Pasteur's careful studies, opposing autogenesis, are all footprints of the march of surgery during the present century, and lead up to a period which was to bring forth a man destined to revolutionize the whole practice of surgery. Joseph Lister will ever be hailed as one of the greatest surgical geniuses the world has ever seen.

A vast field of remedial surgery has been opened up which, previous to the time of anesthetics and antiseptics, was a *terra incognita*.

It seems hardly possible that the author could have penned the following words in his maiden medical paper in 1871: "We may hope that the day is not far distant when union by first intention will not be an uncommon occurrence."

DR. CHARLES MCINTIRE then read the "Report of the Committee on the Comparative Value of Academic Degrees." This report dealt first with that portion of the last report of President Eliot, of Harvard University, relating to the position of the A.B. degree, in which he shows that the other degrees are gradually being given to a proportionately greater number, and "are rapidly winning their way to public consideration and the respect of educated men." This, with the increased efficiency of the secondary schools and the greater demands of the professional schools, was jeopardizing the traditional four-years' course, leading to the A.B degree. In reviewing these statements, it was suggested that the Academy should be on the *qui vive* to learn every change in the educational processes and adapt itself always to the present condition.

A considerable part of the report was occupied with an account of the efforts of the Board of Regents of the University of the State of New York, looking to the elevation of the standard for entrance into the professional schools. Their present aim is to make a high-school education the minimum qualification. A plan of this kind, by which in gradually increasing conditions the students who would graduate in 1900 will have a high-school education, has been adopted by the dental schools, and the Regents are endeavoring to have the medical schools adopt the same plan. The report expressed the opinion that this was the least that the medical schools could do.

The action of the Association of American Medical Colleges in raising both the standard for entrance and increasing the length of the course leading to the degree of M.D., was noticed and commended. The report closed by calling attention to the greater educational power of the courses in our medical schools than they possessed a few years ago. This should result in more thoroughly educating the physician.

DR. J. M. MYER, of Danville, Ky., read a paper on "The Qualifications of the Physician." He maintained that the physician should have a foundation of good common sense and a thorough elementary education, followed by a classical training; the A.B. should be a prerequisite to entrance upon the study of medicine. Of the moral tone of the man there should be no question.

DR. ROBERT LOWRY SIBBET, of Carlisle, Pa., read a paper on "The Work of Our Academy."

The following resolutions were unanimously indorsed by the Academy:

Whereas, The abuse of medical charities, to which the attention of the American Academy of Medicine has been so forcibly drawn by the President in his opening address, is an evil to which the medical profession should not close its eyes; therefore,

Resolved, That the participation of physicians in the movement toward charity-organization is earnestly urged as the most efficient means of limiting the indiscriminate and injurious gratuitous bestowment of medical services.

Whereas, Inflammation of the eyes in the newly born produces defective vision or blindness, which seriously impairs the productiveness of the individual; and

Whereas, Medical experience shows that nearly all of these cases are preventable or curable, it becomes the duty of physicians everywhere to further legislation which promises to prevent this disastrous inflammation;

Resolved, Therefore, that the American Academy of Medicine unanimously favors legislation looking to the prevention of blindness amongst the newly born, and urges all physicians to exhaust every means to bring about such prevention in the hope of ultimately extinguishing the encroachments of blindness from this cause amongst future members of the State.

Whereas, Many defects of vision not amounting to blindness, but seriously impairing the usefulness of the individual have been proved to be caused by improper methods of study and defective arrangements in school-buildings; therefore,

Resolved, That physicians should use their best efforts to secure the appointment of intelligent and educated persons of both sexes on school-boards, and should make it their duty to instruct such boards in regard to the proper distribution of light in school-rooms; the adjustment of seats to desks; the apportionment of hours of study and other points conducive to the hygiene of the eyes.

Whereas, The consideration of dependents, defectives, and delinquents brings the conclusion that their numbers can be decreased by proper care of the individual in childhood and youth; therefore

Resolved, That the health of children under the conditions and requirements of public educational institutions should receive far greater consideration than it has received up to the present time; and as none but physicians are competent to diagnosticate the often obscure tendencies and abnormalities obtaining in these early years, the office of school-physician should be instituted in connection with every public school, and physicians should be upon all public school-boards, the duties of such officers being concerned with the sanitary conditions of buildings, the instruction in hygiene, personal, household, and public, and the individual physical condition of the pupils.

Whereas, The true benefit from a prolonged course of medical instruction, in which laboratory-practice has so prominent a part, can only be obtained by a mind trained to study.

Resolved, That the American Academy of Medicine congratulates the Board of Regents of the University of New York upon their efforts to secure at least a high-school education for every candidate for a medical course, and expresses the wish that they will persevere in their efforts until they are crowned with success.

Resolved, That the Academy commends the action of the dental schools of that State, and urges the medical schools to adopt the same very moderate minimum entrance qualification by the gradual increase as suggested.

The officers elected for the ensuing year are:

President—J. McF. Gaston, of Atlanta, Ga.

Vice-Presidents—Rufus P. Lincoln, of New York City; William T. Smith, of Hanover, N. H.; Helen C. Putnam, of Providence, R. I.; Victor C. Vaughan, of Ann Arbor, Mich.

Secretary and Treasurer—Charles McIntire, of Easton, Pa.

Assistant Secretary—Edgar Moore Green, of Easton, Pa.

Chairman of Committee of Arrangements—C. C. Bombaugh, of Baltimore, Md.

The next meeting of the Academy is to be held at Baltimore at the time of meeting of the American Medical Association.

NEWS ITEMS.

Meetings of State and National Medical Societies:

	Meets.	Next meeting.
American Association of Genito-urinary Surgeons.	May 28–31, 1895	Washington, D. C.
American Association of Obstetricians & Gynecologists.	Sept. 19–21	Toronto, Ont.
American Electro-therapeutic Association.	Sept. 25–27	New York City.
American Public Health Association.	Sept. 25–28	Montreal, Canada.
Association of Military Surgeons of the United States.	May, 1895	Buffalo, N. Y.
British Medical Association.	July 30–Aug. 2, 1895	London, England.
Canadian Medical Association.	September	St. John, N. B.
Idaho State Medical Society.	Sept. 10–12	Boise, Idaho.
Illinois State Medical Society.	May 21, 1895	Springfield, Ill.
International Medical Congress.	August, 1896	Moscow, Russia.
Medical Association of the State of Alabama.	April 16–19, 1895	Mobile, Ala.
Medical Society of the State of California.	April 16, 1895	San Francisco, Cal.
Medical Association of Georgia.	April 17, 1895	Savannah, Ga.
Medical Society of the State of New Jersey.	June 25, 26, 1895	Cape May, N. J.
Medical Society of the State of New York	Feb. 5, 1895	Albany, N. Y.
Medical Society of the State of Pennsylvania.	May 21, 1895	Chambersburg, Pa.
Medical Society of the State of Tennessee.	April 9, 1895	Nashville, Tenn.
Medical Society of Virginia.	October.	Richmond, Va.
Medico-Legal Society.	Dec. 12	New York.
Mississippi Valley Medical Association.	Nov. 20–23	Hot Springs, Ark.
New Hampshire Medical Society.	May 30, 31, 1895	Concord, N.H.
New Mexico Medical Society.	September.	Albuquerque, N. M.
New York State Medical Association.	October 9–11	New York City
Ohio State Medical Society.	May 15, 1895	Columbus, O.
Southern Surgical and Gynecological Association.	Sept. 13–15, 1894	Charleston, S. C.
Texas State Medical Society.	April 23, 1895	Dallas, Tex.
Tri-State Medical Society.	October 9–11	Atlanta, Ga.
Tri-State Medical Society.	October 2, 3	Jacksonville, Ill.
Vermont State Medical Society.	October 11, 12	Montpelier, Vt.

Meetings of Philadelphia Medical Societies:

	Meets.	Next meeting.
Academy of Surgery,	1st Monday of month, Oct.—June.	Oct. 1
College of Physicians,	1st Wednesday of month, Sept.—June.	Oct. 3
Section of Ophthalmology,	3d Tuesday of month, Sept.—May.	Sept. 18
Section of Orthopedic Surgery,	3d Friday of month, Oct.—April.	Oct. 19
Section of Otology,	1st Tuesday of month, Oct.—May,	Oct. 2
Section of Surgery,	2d Friday of month, Oct.—May.	Oct. 12
County Medical Society,	2d and 4th Wednesdays of month, Sept.—June.	Sept. 12
Neurological Society,	4th Monday of month, Oct.—April.	Oct. 23
Obstetrical Society,	1st Thursday of month, Sept.—June.	Oct. 4
Pathological Society,	2d and 4th Thursdays of month, Sept.—June.	Sept. 13

The American Public Health Association will hold its twenty-second annual meeting at Montreal, Canada, September 25, 26, 27, 28.

The following topics have been selected for consideration:

"The Pollution of Water-Supplies." "The Disposal of Garbage and Refuse." "Animal Diseases and Animal Food." "The Nomenclature of Diseases and Forms of Statistics." "Protective Inoculations in Infectious Diseases." "National Health-Legislation." "The Cause and Prevention of Diphtheria." "Causes and Prevention of Infant-Mortality." "The Restriction and Prevention of Tuberculosis." "Car-Sanitation." "The Prevention of the Spread of Yellow Fever."

Papers are invited upon the following additional subjects:

"On the Education of the Young in the Principles of Hygiene." "Private Destruction of Household Garbage and Refuse." "Disinfection of Dwellings after Infectious Diseases." "Inspection of School Children with Reference to the Eyesight."

The Cholera in Europe.—It is reported that for the three days preceding September 3d there were 623 fresh cases of cholera and 313 deaths in Galicia, and in Bukowina 46 fresh cases and 25 deaths. One fresh case of cholera and 1 death were reported at Amsterdam on September 3d. In Maestricht there were 3 fresh cases and 1 death, and in Dordrecht 3 fresh cases and 2 deaths. The State Department has been notified by the Consul-General at Frankfort-on-the-Main that cholera has broken out at Burgela, near Marburg, Germany.

The Tri-State Medical Society (Illinois, Iowa, and Missouri) will meet in Jacksonville, Ill., October 2 and 3, 1894. Valuable papers are promised from leading members of the profession of Chicago, St. Louis, Kansas City, Indianapolis, Keokuk, Springfield, and other places. A large and profitable meeting is promised.

The West Virginia Journal of Medicine and Surgery is the name of a new monthly published at Huntingdon, W. Va., under the editorial control of Drs. C. C. Hogg, J. D. Myers, and J. Boyce Taylor.

Dr. William Cecil Dabney, Professor of Medicine in the University of Virginia, died August 20, 1894, at the age of forty-five years.

BOOKS AND PAMPHLETS RECEIVED.

The Johns Hopkins Hospital Reports. Report on Typhoid Fever. Baltimore: The Johns Hopkins Press, 1894.

I. De l'Empyème du Sinus Sphénoïdal. II. Un Cas d'Angiokératome de la Corde Vocale Droite. Dr. E. J. Moure. Paris-Bordeaux: O. Doin et Fils, 1894.

Some Considerations Bearing upon Practice with Dynamic Antagonists in Cases of Drug-poisoning. By Charles S. Mack, M.D. Reprinted from the North American Journal of Homeopathy, 1894.

The Tariff and Administrative Customs Acts of 1890, and the Bill H. R. 4864, as Reported to the Senate from the Finance Committee, March 20, 1894. Washington: Government Printing Office, 1894.

Remarks upon Appendicitis, Based upon a Personal Experience of 181 Cases. By Maurice H. Richardson, M.D. Reprinted from the American Journal of the Medical Sciences, 1894.

Contribution to the Study of Cerebral Surgery, Based on an Operation for the Removal of a Tumor. By M. H. Richardson, M.D., and G. L. Walton, M.D, Reprinted from the American Journal of the Medical Sciences, 1893.

Two Cases of Brain-Tumor. By Clarence Bartlett, M.D., and W. B. Van Lennep, A.M., M.D. Reprinted from the Hahnemannian Monthly, 1894.

Report of the Jefferson Medical College and Hospital for the Year Ending September 30, 1893.

Transactions of the American Dermatological Association at its Seventeenth Annual Meeting, held at the Hotel Phister, Milwaukee, September, 1893. New York, 1894.

The Annual Report of the Health of the Imperial Navy for the Year of Meiji (1892). Tokyo: Navy Department, Central Sanitary Bureau, 1893.

A Manual of Practical Obstetrics. By Edward P. Davis, A.M., M.D. Second edition, revised and enlarged. Philadelphia: P. Blakiston, Son & Co., 1894.

Sandow on Physical Training. Edited by G. Mercer Adam. New York: J. Selwyn Tait & Sons, 1894.

A Text-book of the Diseases of Women. By Henry J. Garrigues, A.M., M.D. Philadelphia: W. B. Saunders, 1894.

Gonorrhea. Being the Translation of Blennorrhea of the Sexual Organs and its Complications. By Dr. Ernest Finger. Third revised and enlarged edition. New York: William Wood & Co., 1894.

Aural Cholesteatomata. By E. B. Gleason, M.D. Reprinted from the Medical Bulletin.

Pernicious Malarial Fever. By George Dock, M.D. Reprinted from the American Journal of the Medical Sciences, 1894.

The Second Annual Report of the Sheppard Asylum, a Hospital for Mental Diseases. Baltimore, Md., 1894.

The Reciprocal Relations of Mitral Stenosis and Pregnancy. By Herman B. Allyn, M.D. Reprinted from the University Medical Magazine, 1894.

Further Studies of the Cyclopegic Value of Homatropin Plus Cocain Discs, as Atropin, Duboisin, and Hyoscin Substitutes. By Casey A. Wood, C.M., M.D. Pamphlet. Read before the Ophthalmic Section of the Pan-American Medical Congress, 1893.

Spastic Senile Entropion Cured by Canthotomy. By Boerne Bettman, M.D. Reprinted from the North American Practitioner.

The Treatment of Blennorrhœa Neonatorum. By Boerne Bettman, M.D. Reprinted from the Journal of the American Medical Association, 1893.

The Spectacle Treatment of Hypermetropia. By Boerne Bettman, M.D. Reprinted from the North American Practitioner.

A Contribution to the Pathology of Acne Varioliformis Hebræ. By J. A. Fordyce, M.D. Reprinted from the Journal of Cutaneous and Genito-Urinary Diseases, 1894.

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ORIGINAL ARTICLES.

NEPHRECTOMY, WITH REPORT OF A CASE.[1]

BY A. STEWART LOBINGIER, A.B., M.D.,
OF DENVER, COL.;
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TOTAL extirpation of the kidney is an operation not frequently resorted to. Up to 1892 less than 350 cases had been reported. Since that date less than 50 additional ones have been recorded. About 15 of this number have been done in America.

The first nephrectomy, according to Smith's report, was performed in this country, at Milwaukee, in 1860. Walcott was the operator, and he supposed he was operating on an hepatic cyst. His patient lived fifteen days.

Simon, of Heidelberg, was the first surgeon to perform a systematic nephrectomy. This was in 1869, and since that date the operation has been undertaken by surgeons throughout the civilized world, with varying success. Twenty-five years of study and effort have not divested this operation of its formidable character; and the lowering of the mortality-reports has been largely the work of the last five years.

The indications demanding nephrectomy may be briefly summarized:

1. As a *dernier ressort* when nephrotomy fails.
2. When degeneration supervenes in a neglected movable kidney.
3. Intractable renal fistula after nephrotomy, or from any cause.
4. Tuberculous, suppurative, or cystic degeneration.
5. Destructive nephrolithiasis.
6. Traumatism causing rupture, hemorrhage, cloudy swelling, and acute suppurative degeneration.
7. Neoplasms.

Nephrotomy should often precede nephrectomy as a conservative measure. The patient is thus given an opportunity to rally and gain a resisting-power for the more formidable operation. Nephrotomy should be considered also in cases in which it is possible and practicable to save a sound portion of a partially degenerated kidney.

In cases of neglected movable kidney in which extensive degeneration, whether as hydronephrosis or pyonephrosis, has taken place, the kidney should be extirpated. In a very limited number of cases the condition may be relieved by nephrorrhaphy. But most of the cases met with are of such long standing that destruction has progressed beyond repair.

When a renal or urinary fistula has proved beyond possibility of closure, and the irritation from constantly dribbling and decomposing urine jeopardizes life, or makes it unbearable to the patient from an esthetic standpoint, nephrectomy offers an effectual and reasonably safe remedy. The extirpation of the kidney under such circumstances should be undertaken only after every other possible effort and operative device has been resorted to to close the sinus.

Tuberculous degeneration of the renal substance is a positive indication for total extirpation. Whether this degenerative change has been extensive or limited does not signify. The only point to determine in such an issue is whether the constitutional resistance of a patient, often already greatly reduced in physical tone, will prove sufficient to endure the shock of the operation.

Recent statistics of tuberculous kidney show nephrectomy to have been fatal in only about 36 per cent. of the cases. This is a somewhat lower death-rate than applies to simple pyonephrosis, of which the mortality ranges from 35 to 40 per cent.

If suppurative change has existed for a period of a year and a half or two years, the chances are strong that the entire renal parenchyma is destroyed. This destruction will be hastened when the exciting cause is a small calculus in the pelvis, just large enough to act as a valve over the ureter, causing backward pressure of pent-up urine, or when it is the excitant of constant traumatism of the neighboring calyces.

Stone in the kidney is not in itself a sufficient indication for total extirpation. If the calculus be small, whether single or multiple, there will always be imminent the danger of engagement in the ureteral expansion, and occlusion of the duct. Yet the hope of resolution by means of proper solvents mitigates the formidable features of such a case. This hope has no foundation in a case of larger calculus

[1] Read before the Colorado State Medical Society at Denver, June 20, 1894.

when the stone lies in or near the calyx, or loosely in the pelvis. Sooner or later the irritation and obstruction will cause cloudy swelling, inflammation, and suppuration, with degeneration of the pyramids, thinning of the cortex, and progressive destruction of the parenchyma. The longer a stone of such character is allowed to remain without surgical interference, the more remote grow the possibilities of relief by nephrotomy and the more certain the necessity of nephrectomy.

Instances of traumatism causing rupture, extravasation, or acute suppurative change, while not of common occurrence, have been met with sufficiently often to merit a place in the category of indications for nephrectomy. The virulence of the pyogenic bacteria in acute septic cases upon tissues illy immune to their toxic products renders nephrectomy more formidable than in the chronically septic cases.

Primary new-growths common to the kidney, which call for total extirpation, are usually sarcoma and carcinoma. Sarcoma is found the more frequently. Rhabdomyoma and adenoma are less commonly found. In malignant involvement here, as in other tissues, the merit of operative interference is measured by the extent of infiltration. The diagnosis and the extirpation must be made early, or the hazard is without avail.

The high mortality of nephrectomy has long been well recognized, and has for years placed the operation in the category of the most formidable of operative procedures. Statistics have been collected with great care by the best of men, but up to a half-decade ago the mortality, as given by Billroth, Gross, Harris, Weir, and Baum, ranged from 44.6 to 50 per cent. Later tabulations have shown a considerable decrease in the mortality. At present it may be said that the mortality of total extirpation will, in the hands of different operators, range from 36 to 40 per cent. Variations from this percentage will arise from difference in disease, in resisting-power of the patient, and surgical technique.

Nephrectomy is usually a long-delayed operation, undertaken only after every other measure has been tried. The task of one kidney doing the work of two has usually been assumed by Nature some time before the operation of extirpation has been determined upon. The danger in too long delay in these cases is one that should always be borne in mind. Statistics will make a great gain on the favorable side when this fact is thoroughly appreciated and acted upon.

The *diagnosis* of a condition demanding nephrectomy is frequently of less difficulty than the determination of the integrity of the other kidney. The exploratory incision, while easy of resort, is not always expedient. This is so well appreciated that a multiplicity of devices for compression, exploration, or catheterization of the ureter have been devised. Some of these have merit, and, in the hands of patient and dextrous operators, prove reliable. Most of the devices invented, however, are obsolete. Polk's clamp, or the ureteral catheter with illumination of the bladder, has more nearly approached the ideal aid to diagnosis. The exploratory incision always remains as an honorable and justifiable procedure in desperate cases, when all else has failed.

If tuberculosis be suspected, examination of the pus or caseous particles for the tubercle-bacillus will prove an important aid to the differentiation between simple and tuberculous pyonephrosis. Portions of the deposit should be taken up with a pipet and spread between the planes of two small slabs of plate glass, in order to discover the caseous material; for it is in this that the bacilli are found in greatest numbers. Very rarely is the bacillus found free in the urine, even in the most unmistakable and advanced cases of genito-urinary tuberculosis. When the caseous material is found, it may be spread, stained and mounted in the usual way.

The determination of the presence of a calculus is more difficult. If its weight be from fifteen to forty grains, less pain will be caused than when the concretion is smaller. The increase and decrease in the amount of sediment in the urine at irregular intervals points to stone. It will be observed that at the same time there will occur, conversely, an increase and decrease in the size of the tumor and tenderness on pressure. The explanation of these phenomena is too palpable to call for more than mere mention.

In case of calculous pyonephrosis, the presence of blood in the purulent sediment will be more common than in case of tuberculous destruction. In the latter condition the blood appears earlier in the disease, and is not the periodic concomitant observed in the exacerbations of the calculous variety. In this the hemorrhage is largely the result of traumatism and irritation of the pelvis and pyramids by the loose calculus.

Pain is a symptom of little value differentially. Three or four conditions of the kidney may produce pain of essentially similar character and degree.

The general constitutional dyscrasia of the patient, whether tuberculous or rheumatic, may lend aid to the other and more exact methods of differentiation.

I have purposely omitted comparative estimations of urea, as these are of no value from a differential standpoint.

As to the *operation* of lumbar nephrectomy, the details carried out in the case described later will suffice for this paper.

When, from the character or location of the

tumor it becomes necessary to perform abdominal nephrectomy, the operation need depart very little from the technique of the removal of any other tumor from the abdominal cavity, unless the operator prefers the more modern incision of Langenbuch through the linea semilunaris.

Some care will need to be exercised in passing through the peritoneal covering of the tumor, making the opening through the mesocolon externally between the colon and the parietes; for division and ligation of the vessels in the inner layer may be followed by intestinal gangrene. The treatment of the vessels and ureteral stumps is essentially similar to that adopted in lumbar nephrectomy, namely, to drop them into the wound if healthy. If the ureter be suppurative, caseous, or calcareous, it is best treated by stitching its extremity into the lips of a counter-incision made above the crest of the ilium, after the method described by Morris.

Report of a Case. On March 1, 1894, the patient whose case is here reported consulted me at my office concerning a vesical and renal difficulty of three or four years' standing, which was attended with pain on micturition and a large deposit in the urine. She also complained of pain along the right ureteral tract and in the lumbar, right umbilical, and lower hypochondriac regions. She was furnished a sterilized bottle, which was returned on March 2d containing the urine for the preceding twenty-four hours.

The precipitate from 200 cc. in a two-inch cylinder was seven-eighths of an inch in depth. Following is the analysis.

Physical and chemic characteristics:

Quantity for twenty-four hours, 1150 cc. Color (supernatant), reddish-brown. Odor, fetid. Reaction, slightly acid. Sp. gr., 1028. Deposit, quantity and general appearance—large quantity, pinkish-yellow, sanguino-purulent. Urates, none. Phosphates, none.

Albumin, 33 per cent. per volume. Sugar, none.

Microscopic examination:

Bacteria: Staphylococcus pyogenes (abundant).
Streptococcus pyogenes (abundant).
Micrococcus ureæ (scant).

Pus, abundant, deposit largely pus. Casts, none. Blood, considerable amount. Epithelium, abundant. Crystals, none.

I examined the pus and flocculent particles for the bacillus tuberculosis, with negative results.

An appointment was made with the patient for a physical examination on March 4th. At 4 P.M. on that date the following history and conditions were elicited:

Mrs. J. H. A.; was thirty-two years old, married six and a half years, and gave a good family history. There were no cases of renal or calculous disease in any branch of the family. The woman had borne four children; the first five years before, the youngest was ten months old. The patient had a miscarriage in the sixth week of gestation, two and a half years before. Eight months later, while in the mountains, she had an attack of acute lobar

pneumonia, involving the lower lobe of the left lung. This confined her to bed eleven days, and her convalescence was tedious and protracted. She had had a slight cough from this time, mostly at night, which had been accentuated since the birth of her last child, and she now coughed during the day as well. She had never had a cough before the attack of pneumonia. She first noticed the deposit in her urine four years ago. It was not constant, nor was there a competent analysis made to determine its character. There would be periods when this deposit would abate and apparently disappear; but it would recur from time to time, and for a year and a half had maintained a constant and somewhat increasing quantity.

She now suffered from pain in the upper right lumbar region, extending into the right umbilical region, along the right ureter and at the neck of the bladder; experienced great lassitude and had lost ambition and spirit. Her appetite was only fair, and at times she had chilly sensations, which pointed to sepsis. She nursed her ten-months-old baby and endeavored to look after the duties of her household. She said that she was growing weaker day by day. She had the appearance of a tuberculous subject, with a pale, poorly nourished, darkly veined, transparent integument, prominent eyes, pinched and anxious physiognomy and frail movement. Her weight three years ago, and before the miscarriage and pneumonia, was 150 pounds; she now weighed 108 pounds, and her temperature, at 4 P.M. was 99.1°; her pulse 76; her respiration 22.

Examination of the lungs revealed pleuritic adhesions at the base and throughout the lower lobe of the left lung, with some dulness posteriorly. The fremitus was increased at the apex of the right lung and at the outer angle of the apex of the left lung. No râles or distinguishable areas of consolidation were detected elsewhere. The respiratory action was feeble; the expansion symmetrical, but limited. The stomach, spleen, and liver were apparently normal. At the junction of the right hypochondriac with the right umbilical region, between the linea alba and the right axillary line, was a firm tumor about four inches in diameter, that was so tender on pressure that the patient bore manipulation with difficulty. In the dorsal decubitus the tumor slipped away into the lumbar-hypochondriac region. Its prominence, however, was only apparent ventrally. Dorsally the quadratus prevented gravitation and protrusion of the mass.

In the erect posture the tumor became markedly prominent and gravitated downward and inward, so that its lower pole was three-fourths of an inch below the umbilical line. On bimanual manipulation it was evident that the tumor-mass was not as mobile as would appear from a cursory view, the contraction and relaxation of the abdominal wall and movement of the neighboring viscera causing the deception. Following downward, and making firm pressure along the right ureteral tract, elicited great tenderness all along the duct. This tenderness was not localized, but evenly distributed. Examination of the left renal and ureteral region in a similar manner revealed no tenderness, tumor, displacement, or other abnormality.

Examination *per vaginam* and bimanually showed the uterus to be small, high up, with neither version, flexion, nor laceration. The urethra and the neck and *bas fond* of the bladder were tender on pressure; the right ovary low and sensitive, and the tube somewhat thickened. The left ovary and tube were normal. Examination *per rectum* and bimanually showed the right ureter, from its emergence in the bladder to the brim of the pelvis, excessively tender. This tenderness was almost as marked as over the tumor itself. On the left side the firmest pressure and manipulation revealed no tenderness or discomfort.

Diagnosis. Right pyonephrosis, either calculous or tuberculous, with an intercurrent cystitis; the medullary portion of the kidney probably destroyed, and the organ adherent to contiguous structures.

An operation, either nephrotomy as a palliative or nephrectomy as a radical measure, was advised without delay. The patient was made aware of the mortality attending nephrectomy, and on the other hand the jeopardy to life if not relieved of her septic condition. She asked for a few days to determine what she should do. Meantime she was ordered to wean her baby at once; tonics were prescribed, and the question of operation was debated freely with her friends. Seven valuable weeks were consumed in this desultory discussion, and finally, at my request, a consultation, which I had already suggested six weeks before, was arranged with Dr. W. B. Craig.

On April 25 Dr. Craig made an examination, confirming the points and diagnosis herein set forth, and advised an immediate operation.

On April 27, at St. Luke's Hospital, the operation of lumbar nephrectomy was performed by Dr. Craig and myself, Drs. Axtell and Bagot assisting. The patient had been prepared as for abdominal section. After sterilizing the lumbar area, a firm pad was placed under the left flank. Starting half an inch below the last floating rib and two inches external to the spine, a diagonal curvilinear incision four inches in length, was made downward and forward over the crest of the ilium. Passing inward, the external border of the quadratus was used as a guide, forming the posterior boundary of the incision; the fatty capsule was taken up and incised, and the kidney brought, by upward pressure on the abdominal wall, quickly into the field.

Dorsally and laterally the kidney was free from serious adhesion, but about the pelvis and vessels and at each pole it was firmly and extensively adherent. Considerable time was occupied in dissecting away the organ, using the fingers where practicable, and the scissors where there was firm connective-tissue union. The latter condition was especially marked at the upper pole, where a solid mass of fibrous tissue, an inch long and three-fourths of an inch in diameter, had formed, including in it the supra-renal capsule. At the lower pole the kidney was larger, softer, and, as would be expected, showed evidence of recent and continuous inflammatory

change from the presence of the pus which gravitated to that area.

It was planned to dissect out the kidney and enucleate it, if possible, without opening into the cavity of the abscess, and by this means guard against infecting the wound. But the adhesions of the lower pole were so extensive, and the parenchyma of the kidney composing the abscess-wall so degenerated, that, in a final effort to free the small remaining adhesion the wall was ruptured and the wound infected. The parts were at once copiously irrigated, the kidney freed from remaining adhesions and enucleated, the ureter and vessels being ligated separately with strong silk. The ureter was stitched in the lower angle of the wound, and a small soft rubber drain inserted into the duct for four inches. The vessel-stump was dropped into the cavity, and the latter packed with iodoform-gauze. Three or four sutures were introduced in each angle of the wound and the center left open for drainage.

The operation, from the first incision to the completion of the sterilized dressing, occupied one hour and five minutes, the freeing of the adhesions consuming most of the time.

The patient's pulse, respiration, and general condition were excellent at the end of the operation. She was left quietly resting on the table in the operating-room for twenty minutes after completion of the dressing and withdrawal of the anesthetic, during which time the temperature of the room was being reduced from 85° F. to 70° F. She was then removed to a room and placed in bed, surrounded with warm bottles, and the usual *régime* observed in cases of abdominal section carried out. She vomited but once in the first forty-eight hours, and but twice afterward. Her temperature and pulse-rate were highest on the second day, 102.2° and 125 respectively. On the fourth day she was normal, and remained so.

It was well understood before the operation that we should likely encounter pus, and that it would be heavily charged with both streptococci and staphylococci, as appeared from examination of the pus in the urine. It was morally certain, therefore, that an elevation of temperature additional to the operative curve would result from the infection caused by rupture of the abscess-wall. Had the patient not been somewhat immune from her long-standing septic condition, a much higher temperature-curve would doubtless have resulted.

The tube in the ureter was removed on the sixth day. The ureter had been syringed once a day with hydrogen dioxid and boric-acid solution. The bladder had been irrigated twice daily with a solution of boric acid, borax and sodium chlorid. The deposit in the urine had almost entirely subsided the day after the operation, but it was thought better to restore the tone of the bladder by removing the very slight amount of pus being formed there; hence the irrigation.

The sutures retaining the ureter, and those in the wound were gradually removed from the tenth day. Four weeks after the operation the patient was discharged in good health. She had greatly gained in color, strength, and weight, and has continued to improve every day since.

The kidney removed measured five inches in length, two and a half inches in width, and one and a half inches in thickness, being one inch and a half inch larger respectively in its two major dimensions than the normal kidney of a woman. The weight of the organ was 175 grams (6 ⅛ oz.).

On section it was found to be studded with abscess-cavities throughout the medullary portion and involving much of the cortex. The pelvis was greatly distended and contained a calcium-oxalate calculus weighing 1.25 grams (20 grains).

The calculus had caused destruction by traumatism and occlusion of the ureter, producing backward pressure. There was no evidence of tuberculosis. On making a microtome-section, and staining for the tubercle bacillus in the tissue, I found none. Other sections of healthy-looking portions of the cortex were made and stained with logwood. The appearance of the tissues was most characteristic, showing the parenchyma to be entirely destroyed by granulo-fatty, cirrhotic, and amyloid degeneration.

THE ENCOURAGEMENT AND SUPPORT OF THE LABORATORY-TEACHER AND LABORATORY-SPECIALIST.

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The evolution of medical education has created the laboratory-teacher as a recent and very essential addition to the medical faculty. The profession has scarcely yet learned the importance of the work assigned to the laboratory-instructor; nor has it learned how to provide for the maintenance of its new creature.

So long as the commercial spirit pervades medicine, so long will teachers of medicine teach for selfish ends. It is not reasonable to expect an unsalaried teacher to devote his time and energies to his students without looking to his self-interests. As a consequence, the teaching of medicine has not been, as a general rule, broadly and fearlessly honest. Students have not been taught to become self-reliant practitioners in the college-courses. These remarks apply, of course, especially to clinical teachers.[1]

In the good old days of medical education, when staphylococci and streptococci and diplococci and karyokinetic figures did not disturb the minds of educators and students of medicine, laboratory-

[1] I desire to accredit the foregoing ideas to Dr. Bayard Holmes, who has from time to time expressed them in a somewhat different form, and in different relations. The scheme for the development of a laboratory-specialism upon the lines suggested is, however, original, if not novel.

courses and laboratory-teachers were easily maintained. The chemic laboratory and the professor of chemistry offered the only problems to the faculty. Here, as a general rule, everything was easily settled, for his colleagues could recommend to the professor of chemistry well-paying mineral-water and baking-powder agents, from whom the chemist usually managed to obtain sufficient compensation without trespassing on the college-treasury. Failing in this, the professor of chemistry was appointed adjunct to the chair of diseases of the rectum, and, content to await his time, he taught chemistry until the chair of rectal diseases became vacant. Anatomy has always been looked upon as the handmaid of surgery, and for this reason the laboratory-anatomist has rarely given his colleagues concern.

When it became fashionable to give the so-called "laboratory-courses" in histology and in pathology, the instructor was still content to serve this preliminary apprenticeship in order to see his name on the faculty-list of the college-announcement, and with the promise of a slice of clinical toast later in his service. When laboratory-courses in histology and pathology consisted in passing from student to student beautifully colored sections of tissue prepared by the demonstrator, or, more often still, imported from Germany, which were magnified by the exhibition-microscope; or when, later still, these courses consisted in passing dishes of stained sections in clove-oil, all labelled and ready to mount, then a laboratory-teacher could afford to serve his apprenticeship while he waited impatiently for a clinical promotion. Of course the student learned little to make him independent in these days of laboratory-teaching, but he had never learned to look for anything more in other branches of medical instruction.

Gradually, however, the demands for a thorough and liberal instruction have made themselves felt, and as an outcome we witness an ever-increasing agitation for improved medical education. Especially is this true of laboratory-instruction, and a demand for better laboratory-teaching and for laboratory-teachers has arisen. It has come to be recognized among thoughtful medical educators that laboratory-instruction and laboratory-instructors must be entirely divorced from a clinical or a commercial relation. The instructor who makes his laboratory-work the stepping-stone to a clinical specialty can at best do only half-hearted work. The laboratory-instructor who, like his ancient predecessor, the chemist, makes laboratory-work a commercial enterprise, cannot be honest to himself or to his students.

Recognizing the fact that laboratory-teaching calls for much skill, much patience, and much hard work, and that a medical man who is familiar with the remuneration and independence of the practice of medicine must expect, at least, a commensurate compensation for his work, the problem arises, how to provide for the laboratory-teacher. Pay him a salary? Very well. What salary will afford him an equivalent of what his skilful brother-physician earns in his practice? How many of the medical schools of the United States can afford to pay their laboratory-teachers salaries of five thousand, ten thousand, or even twenty thousand dollars a year? And still these sums of money are earned by skilful practitioners; and if the laboratory-teacher be compelled to lay aside all clinical claims, as he surely must to do good laboratory-teaching, is he not entitled to at least a proportional compensation?

In the absence of large endowments—endowments large enough to permit the salarying of all medical instructors—some provision must be made for the teachers of the "unpractical" subjects of the medical curriculum.

As the outcome of certain personal experiences, and as a result of much thought upon this subject, I am prepared to offer certain suggestions for the temporary support of laboratory-teachers in medicine—that is, for the support of those teachers until medicine shall become an endowed institution or a State institution.

In the first place, the laboratory-teachers in medical schools should be encouraged to elect laboratory-teaching as a life-work. They should be discouraged from entering into the clinical fields more than their work demands; and they should not engage in routine private practice. All laboratory-teachers should be paid a salary, and this salary should be as large as the college can afford, though doubtless only a fraction of what a thoroughly good and enthusiastic teacher would earn. Finally, the colleagues of laboratory-instructors should provide for them collateral support of a nature to be discussed later on.

There should be a graded series of promotions in the corps of laboratory-teachers similar to that which obtains to-day among clinical teachers. Certain laboratory-branches, as biology, first-year chemistry, histology, and embryology, for instance, should constitute the introductory work for an aspiring laboratory-man. These branches can be assigned to young men of recognized ability who are recent graduates in medicine. These men should be paid a salary sufficient to enable them to live without practising medicine. The experience obtained in this work would be an invaluable introduction to the higher, and, if they may be so called, more "practical" laboratory-branches, as pathology and bacteriology, physiologic chemistry, and laboratory-medicine.

It is especially to the support of the "practical" laboratory-teachers that attention will be here di-

rected. These teachers must also receive a definite salary. In the present poverty of medicine, however, this salary cannot be a sufficient compensation for the time and work spent in preparatory teaching, nor can it compensate for the valuable services of a man who gives his life to laboratory-work. The laboratory-teacher of pathology, bacteriology, chemic physiology and pathology, and of laboratory-medicine must then receive further compensation. How shall this compensation be provided?

It has already been suggested that his colleagues should give the laboratory-teacher collateral support —that is, they should lend him all possible assistance in obtaining work relating to his laboratory-service, and they should assist him in obtaining pay for this work.

The past few years of medical progress have brought into special prominence the value of laboratory-methods in all lines of clinical medicine and surgery. The vast majority of American clinicians are to-day untrained in laboratory-methods, or, being trained, are too much occupied to apply these methods in their clinical work. These clinicians are coming more and more to look to the laboratory for assistance in diagnosis and treatment, and the time now seems ripe for a new specialist in medicine—*the laboratory-specialist.*

Recognizing that laboratory-methods find more and more application in clinical medicine and surgery, and that clinicians cannot apply these methods, it remains, of course, to place work of this character in the hands of the laboratory-specialist.

The laboratory-teacher's services have already been demanded by his clinical colleagues. It is further true that while these services have been demanded and freely given, they have not been fairly recognized nor fairly compensated. Every laboratory-worker has on his table bottles of urine, bottles of sputum, and bottles of tissue, that represent hours of patient work; but few laboratory-workers have bank-accounts composed of earnings derived from this work. His clinical colleagues have largely treated the laboratory-teacher as a servant. Indeed, there can be no doubt that the tendency of many clinical men, and especially surgeons, has been to look upon a laboratory-colleague as a very convenient assistant, who ought to feel well paid for his laborious examinations for the privilege of obtaining certain valuable specimens or of witnessing the surgeon's skilful operations.

That this kind of treatment is unjust every fair-minded physician must admit. The knowledge and skill required in the prosecution of the many delicate laboratory-manipulations place the laboratory-specialist at least on a par with the most skilful clinicians in medicine and surgery. This being true, and the necessity of laboratory-assistance being recognized, why cannot the laboratory-specialist be treated with the same professional courtesy as the clinical specialist?

The laboratory-specialist can and should receive the same treatment at the hands of his professional brethren as the clinical specialist. He should be treated as a skilful consultant; not as an assistant. His services should be obtained under the same ethics as govern other professional consultations. When the physician or surgeon has a case calling for a laboratory-diagnosis, the laboratory-specialist should be called into consultation, and he should receive for his services a consultation-fee commensurate with the character of the work and the means of the patient.

The field of the consulting laboratory-specialist is very wide at present, and is increasing each day. The methods of the laboratory are each day being extended farther and farther into clinical medicine and surgery. A few examples will serve to indicate the field of the laboratory-consultant, and to suggest the proper course of procedure to the clinicians.

Professor A, a surgeon of much skill, and with a large and remunerative practice, has a case something like this: A man, in good circumstances, has been referred for the treatment of an axillary adenitis, secondary to an infected wound of a finger received some two months previously. The glands have enlarged slowly during the last month, and are only slightly painful on pressure. The important question of a correct diagnosis at once enters into consideration. Is this adenitis the result of a purely pyogenic infection, a mixed infection, or a purely tuberculous infection? Professor A sees at once that, in order to make the diagnosis upon which so much depends, he must call for assistance upon Professor B, the pathologist. Professor B comes to the operation with his tubes of blood-serum, agar, and gelatin, and with a guinea-pig for inoculation. He obtains the freshly removed glands, and with great care makes inoculations upon his agar, gelatin, and blood-serum; and he inoculates the guinea-pig with a bit of one of the glands. Upon his arrival at the laboratory the pathologist proceeds to make a large number of smear-preparations from the suspected glands, which he stains for the tubercle-bacillus, without finding that organism; he also hardens pieces of the glands, and during the next two or three days he cuts many sections of the gland-tissue, which he also stains for bacteria. All of this work furnishes negative evidence, and, further, at the end of two or three days, it is seen that the culture-tubes inoculated at the operation remain sterile. This practically excludes active pyogenic infection from the diagnosis. Now comes the tedious wait of three weeks, until

the inoculated animal is seen to be emaciating and about to die. The animal is killed, and upon post-mortem examination is found to be tuberculous. The pathologist reports his diagnosis to the surgeon, who has waited rather impatiently for it. Professor A thanks Professor B, and proceeds to further operation upon his patient. Professor B sighs for the day when he too can become a great clinical surgeon. He believes that, in this particular case, he has done more work, more important work (to the patient), and more skilful work, than Professor A, and he believes that in all justice he should receive a fee for this work equivalent to that of his surgical colleague. But the services of laboratory-specialists are not recognized at this time, and Professor B is compelled to do what hundreds of fellow-laboratory-workers are doing all over this country—to give his time and services without just compensation.

In this hypothetic case we would suggest that Professor A might have treated Professor B in this manner: Professor A should have informed his patient that in order to obtain a correct diagnosis he must call into consultation Professor B, a skilful laboratory-specialist. He should have informed his patient that he much preferred the consultation with Professor B to that of another surgeon who, like himself, could only add surmise to uncertainty. Of course, the patient would agree to anything that Professor A advised for his good; and, instead of coming into the case as an obscure assistant, Professor B would come introduced to the patient as a skilful consultant. When his work was ended, Professor B would render a bill for his services to Professor A, who would collect the fee from the patient.

A patient from an outlying town is recommended to Professor A, the surgeon, for the treatment of a multiple synovitis affecting both knee-joints and one elbow. Professor A is in serious doubt as to the nature of the disease. Is the infection pyogenic, gonorrheal, tuberculous, or mixed? Professor A cannot make a diagnosis without the assistance of a laboratory-expert, and he feels that conscientiously he cannot treat his patient without making a correct diagnosis. Consequently he again calls upon Professor B, who arrives at the hospital with his syringe, test-tubes, and culture-media, and obtains some of the fluid from the joint for examination. After a series of carefully conducted experiments, including again the inoculation of a guinea-pig, Professor B reports that the fluid contains neither active pus-cocci nor tubercle-bacilli, and that in all probability the infection is gonorrheal. Here again Professor A might have called Professor B in consultation, introduced him to the patient as a consultant, and permitted him to receive a fee for his services. Had it been necessary to call Professor C, the physical diagnostician to decide upon the question of the integrity of the patient's lungs, Professor A would have adopted the latter course. Still it certainly is an open question whether Professor C, with his stethoscope, would have done as much work, or as skilful and patient work, as was required of Professor B.

Examples like the foregoing, in which the surgeon requires the assistance of a laboratory-consultant, might be given in considerable numbers. The bacteriologic analysis of exudates in the chest, in the abdomen, and in the joints, is assuming a very important place in surgical diagnosis. The examination of urine for pyogenic products is rapidly becoming an important factor in the diagnosis of concealed purulent accumulations. The microscopic examination of tumors has always been recognized as an essential part of surgical diagnosis.

These are some of the examples, then, of the cases in which the surgeon is compelled to look to some laboratory-worker for aid. Is it not time that the work of a colleague which means so much to the surgeon's success should be properly dealt with? Is it unreasonable to ask that the laboratory-expert be treated with the same professional courtesy as any other skilful specialist? We believe that every fair-minded surgeon will, once his attention has been properly directed to this matter, treat his laboratory-colleague with proper regard for the character and value of his services. The difficult and important work of this new specialist should not be hidden from the public gaze, while the clinicians win glory and admiration for their brilliant work. The laboratory-consultant should not, in those cases in which he renders valuable services to other practitioners and to the public, be compelled to secretly prosecute his work in the confines of his dingy laboratory, while the clinicians reap credit and reward for the work that could not have been accomplished without the aid of the laboratory-expert.

What has been said of the relation of the surgeon to the laboratory-specialist may also be applied to the other clinical specialists—to the specialist in internal medicine, to the gynecologist—and to the general practitioner. All of these physicians look more or less to the laboratory for assistance in diagnosis. In internal medicine, for instance, there is the examination of urine, blood, and sputum, for a large variety of pathologic conditions. Here, too, we have the very important culture-method for the diagnosis of diphtheria, a method that should be applied in every case of suspicious sore-throat, and one that must prove of incalculable benefit in diagnosis, treatment, and prophylaxis. How few clinicians have the facilities at hand, or the knowledge of bacteriologic manipulation necessary to apply the culture-test for diphtheria? In case the clinician is compelled to call upon a laboratory-expert for this piece of work, should he not, instead of obscurely

sending a swab to the laboratory, invite his colleague into consultation, enable him to procure his own specimen with those precautions that he best knows are essential; and, finally, when a positive diagnosis is reached, should not the laboratory-expert be allowed to collect a fee from the patient for his services?

Similarly, when the gynecologist desires an examination of a piece of tumor-tissue, or of a piece of uterine mucosa, he can call the laboratory-specialist in consultation with him to the patient's bedside, where the tissue can be observed *in situ*, and then be preserved with proper precautions—all matters of great importance to a laboratory-diagnosis, while at the same time affording opportunity for the proper professional treatment of the laboratory-associate.

It is not contended that all possible laboratory-examinations should be made in consultation as indicated in the foregoing examples. A certain kind of routine work, like the ordinary examination of urine, and of sputum, could constitute the "office-work" of the laboratory-specialist. The specimens could be sent to the laboratory, and upon a laboratory-report an ordinary fee could be charged for the examination, without the formality of consultation. But all cases demanding a more careful examination, as bacteriologic analyses, blood-examinations, and tissue-examinations, should be treated as consultation-work.

It is quite impossible to indicate all of the cases in which the clinical specialist and the laboratory-specialist could coöperate to their mutual advantage and to the advantage of the patient; but enough has been said, it is hoped, to illustrate the principle involved and to indicate the only fair course of procedure. If the clinical specialists in the large medical centers of this country will treat their laboratory-colleagues as here suggested, and will make due efforts to bring all legitimate work into the hands of the laboratory-workers, the vexed question of the support of the laboratory-instructors in our colleges will be temporarily settled. Then laboratory-experts will not be driven to form corporations for mutual protection, as has already unfortunately been done. By thus rewarding justly the skill of the laboratory-expert, many young men of promise could be encouraged to enter upon laboratory-work as a specialty, assuring an adequate supply of laboratory-teachers, and opening the way for original researches in laboratory-medicine. The enthusiastic laboratory-student would cultivate his chosen specialty for its own sake, and not prosecute it temporarily as a stepping-stone to a clinical specialty. The laboratory-teacher could then well afford to do the large amount of purely scientific work that naturally comes from an unpaid hospital-service; just as the clinician can afford to do this work when he is assured of an indirect compensation.[1]

ON EPILEPSY IN EARLY LIFE, WITH ESPECIAL REFERENCE TO THE COLONY-SYSTEM IN THE CARE AND TREATMENT OF EPILEPTICS.

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The very fact that epilepsy has successfully resisted for so long a time the efforts of science to solve the cause of its origin renders the affection always of interest. It is unfortunate, however, that, in a measure at least, its very frequency has a tendency to cause many to regard it as a commonplace affection—a malady that can rarely be cured, and therefore one that has to be endured. This fact, so far as it is applicable, is to be deplored.

Epilepsy is a widespread disease. It is estimated, on a conservative basis, that two persons in every thousand of the population of this country suffer from it in some one of its forms. If all cases of epilepsy could be put on record I have no doubt but that this estimate would be materially increased. Epileptics in the better walks of life and their friends and families are prone to conceal the fact of the existence of the disease.

Reckoning on the basis that two persons in every thousand are epileptics, there would be about nineteen hundred in New York City alone, about twelve thousand in the State of New York, and about one hundred and twenty thousand in the United States.

Epilepsy has been known to exist for some thousands of years, and from time immemorial its victims have been made the receptacles into which drugs, compounds, and decoctions have been literally poured without stint or cessation.

Master-minds have studied the disease in all ages. Hundreds of years ago Hippocrates described epilepsy so accurately that modern clinicians find but little to add to his masterly description. With medicinal, dietetic, hygienic, and surgical treatment we have done our best; and yet, what have we accomplished? It is not a pleasant thing for enlightened science of the nineteenth century to contemplate, but it is a fact beyond controversy

[1] While this article was being prepared for the press I encountered the appeal of Dr. John Slade Ely ("The New Relations of Pathology and Practical Medicine as Bearing upon the Pathological Departments of our Hospitals," Medical Record, August 25, 1894), who makes a very reasonable petition for the salarying of all hospital-pathologists. Greatly as it is to be desired, we fear this suggestion will find tardy acceptance in the present poverty of medicine; and the hospital-pathologist, like the hospital-clinician, will be compelled to look to his associates and to the public for his support.

that, with all our resources, we do not to-day cure 1 per cent. of the cases of idiopathic epilepsy that come under our care. I purposely omit, of course, including in this estimate reflex, traumatic, and such other varieties of epilepsy as have a definitely ascertainable cause, and for that reason are frequently amenable to treatment.

One of the most interesting facts in regard to epilepsy is that it is peculiarly, indeed, I may almost say essentially, a disease of early life. True, it sometimes begins late in adult life. Cases are on record in which the first convulsion occurred after the age of sixty. But when the seizures arise *de novo* at such a late period they are usually of traumatic and not of idiopathic origin. When simple idiopathic epilepsy develops in an idividual who has reached adult life it will usually be found that convulsions had occurred during infancy or childhood.

Seventy-five per cent. of all cases of epilepsy begin under twenty years of age, and nearly 50 per cent. between ten and twenty, the maximum being at the ages of fourteen, fifteen, and sixteen. Again, twelve cases among every hundred begin, according to Gowers, during the first three years. This is a serious fact and one worthy of being remembered when we see an infant or young child suffering for the first time from convulsions, *no matter what the cause may be.*

Females suffer more frequently from epilepsy than males, the proportion being about six to five.

An etiologic factor of vital importance in the study of epilepsy, as well as of other diseases of the nervous system, is heredity. No single cause plays a more conspicuous part. The best observers, including Gowers, trace an inherited tendency to epilepsy in 35 per cent. of all cases. Epileptic children, however, do not come from epileptic parents in all instances. Sixty-six per cent. of those who inherit an epileptic tendency have epileptic parents. The remaining 33 per cent. are born of parents who are or have been insane, or who suffer from chronic alcoholism.

The heredity taint is transmitted to females more frequently than to males. An inherited tendency is found in 33 per cent. of male epileptics, and in 37 per cent. of female epileptics.

During the first ten years of life the number of females that develop epilepsy exceeds the number of males by 6 per cent. This is explained on the ground that when the hereditary predisposition is maternal more females suffer than when the predisposition is transmitted through the father. If this be true, and we have the testimony of the best observers that it is, it affords an excellent illustration of the doctrine of the "survival of the fittest." It would seem that the females, at some time and in some manner not explained, acquire a greater degree of susceptibility to the disease than is acquired by the opposite sex, and that the natural and physiologic propagation of this susceptibility consists in handing it down to the like sex from generation to generation.

Inherited epilepsy usually develops before the age of twenty. It may not, however, appear until late in life. A singular fact in this connection is that when idiopathic epilepsy appears in the parent at a certain age—say twenty-eight, for instance—the offspring is far more liable to develop the same disease at about the same age. This patho-physiologic fact holds true in reference to other diseases, notably pulmonary tuberculosis and certain forms of insanity.

Next to heredity it is my firm conviction that dentition, when severe, and *when acting on an organism that bears the impress of transmitted weaknesses,* plays the most important rôle in causing epilepsy in early life. Indeed, I fully believe that the importance of teething in this respect has not been accorded the careful attention it deserves.

In speaking of epilepsy in infancy, Gowers uses these words: "Of all the cases that commence in infancy at least three-quarters date from infantile convulsions ascribed to teething." This author also believes that rickets acts as a combining cause in such cases.

The relationship between dentition and epilepsy is of peculiar interest, from the fact that it too often happens that just at this period the seeds of future insanity are sown. Infantile insanity is extremely rare, but the undermining of the mental powers that may not be apparent until some exciting cause later in life causes it to develop often begins at this critical period.

Through correspondence I recently secured the views of several well-known physicians bearing upon the relationship between dentition, epilepsy, and insanity. Some of them I give here:

Dr. Abram Jacobi says:

"Every convulsion, ever so slight or short, may produce cerebral hemorrhage, with all the possible results —epilepsy, idiocy, paralysis, and insanity. Such cases are, unfortunately, frequent."

Dr. G. Alder Blumer, Superintendent of the Utica State Hospital, writes:

"My belief is that one must go back of the dentition, and regard the disturbance of this process as the mere exciting cause of the explosion."

Dr. Graeme M. Hammond says:

"I have records of several cases in which convulsions, due to dentition, were followed by true epileptic convulsions, and later by such dementia as we often see in children after repeated epileptic convulsions."

Dr. Frederick Peterson, who has given the study of epilepsy much careful attention, writes as follows:

"I can recall a number of cases of epilepsy due to the convulsions of dentition. Such epileptics might later on have mental disorders."

Dr. T. S. Clouston, Superintendent of the Royal Morningside Asylum, Edinburgh, a thorough and distinguished alienist, wrote as follows:

"I have seen cases of prolonged delirium ending in idiocy arising out of the convulsions of dentition. I have also seen many such cases ending in true epilepsy, followed by insanity. I have also seen so many cases of the insanity of adolescence and others occur in persons who had had severe convulsions when teething that I can scarcely regard the two as coincident."

I have the views of many others, but to reproduce them here would only be to add testimony of a similar nature to that already given. It would be a valuable lesson to learn, and having learned it, to remember it constantly, that the spasms and convulsions of infancy are *serious* manifestations, and if allowed to go unchecked, may lead to explosions of genuine epilepsy, and later on to insanity.

There is, as we know, such a thing as the epileptic habit. Epileptic seizures, once established or even initiated, have a strong tendency to remain permanent through no other apparent reason than the force and power of habit. Of course there is a reason why epileptic convulsions of idiopathic origin tend to repetition; but of this I hope to speak in a subsequent paper.

Bearing in mind the possibility of the establishment of the epileptic habit, we cannot lay too much stress on the importance of promptly relieving the distressing symptoms attending the eruption of the teeth in infancy. The importance of appropriate interference becomes more essential if there be an inherited tendency to mental disorder of any kind in the suffering child. The nervous system of the child is keenly sensitive to abnormal impressions of every kind. At this period of life it is the highest function of the nervous system to receive and register impressions.

Taking all these factors into consideration it would seem that the period of dentition, for a considerable class of children at least, might justly be regarded as an epoch—an epoch that invites epilepsy, with all its remote consequences, mental disorganization and mental death.

It is not necessary that I should speak of the therapeutic measures of relief that we can apply in such cases. I desire simply to call attention to the serious consequences that are likely to follow when the too-little regarded spasms and convulsions of infancy go unchecked.

Among other fruitful causes of epilepsy in infancy and childhood may be mentioned fright, blows and falls upon the head, acute diseases, intestinal worms, digestive disorders, and a generous variety of other causes which act reflexly, such as stricture of the urethra, adherent prepuce, and certain errors in the refractive and accommodative apparatus of the eye.

Fright, as a cause of epileptic convulsions which may be superseded later by true epilepsy, is most active before the age of seven and about the period of puberty. Up to the age of puberty it affects either sex about equally. At the period of puberty girls suffer most. This distribution is explained by reason of the profoundly disturbing effect the transition from girlhood to the higher plane of womanhood has on the entire nervous organization.

Head-injuries often lead to epilepsy, and, by reason of the usually limited area of the brain affected, the type of the disease is more frequently Jacksonian in character. Surgical measures constitute the only rational treatment in such cases. But, in order that good results be secured, they should be instituted as early as possible after the first warning that there exists an irritative lesion in the motor area of the brain that promises possibility of removal through operative intervention.

It sometimes happens that injuries received during childhood, and regarded as unimportant at the time, prove later in life to constitute lesions that give rise to convulsions. The lesion is acquired in consequence of inflammatory thickening of the membranes at the point of injury as a result of hyperplasia of the connective-tissue elements of the cortical layers of the brain. Surgical treatment in such cases does but little good. It is frequently necessary to excise a small portion of brain-substance in order to clear out as much as possible all tissue of foreign growth, and when the incision made by the surgeon heals, a scar is the result, which in time is capable of doing the very harm that was done by the original cicatrix.

Intestinal worms cause convulsions by reflex action, and it is important that the presence of such parasites be detected and that they be removed as soon as possible. Otherwise the epileptic habit is likely to become established.

Severe digestive derangement not infrequently gives rise to convulsions, especially in rachitic and puny subjects and in those that have an inherited tendency to nervous instability. Everything possible should be done to improve the constitutional vigor of such patients. Above all, the matter of diet should receive first consideration. I cannot pass over this part of the subject without briefly referring to the great value of intestinal antisepsis.

So long as there are errors in diet, and so long as faulty and inefficient digestive fluids are poured into the alimentary canal by reason of poor constitutional vigor and disease, and disorganized gastric and intestinal glands, just so long will be encountered fermentative and other processes that call for intelligent and active treatment.

Auto-infection is a common result in such cases, and, it having once arisen, the only way to deal with it promptly and effectively is to render the entire alimentary canal from end to end as free from the products of fermentation and putrefactive changes as possible. Lack of space forbids the further consideration of this part of the subject, and I shall now briefly refer to the very excellent provisions embodied in the colony-system in the care and treatment of epileptics.

It is not necessary that the history of the origin of this system of caring for the epileptic be reviewed. I shall merely suggest that anyone who wishes to familiarize himself with that branch of the subject should read an article by William Pryor Letchworth, LL.D., on "Provision for Epileptics," which was read before the National Conference of Charities and Corrections held at Nashville, Tenn., from May 23 to 28, 1894. The subject is also treated at length by Dr. Frederick Peterson in the *American Journal of Insanity* for January, 1894, in an article entitled "On the Care of Epileptics."

In 1873 the State Commission in Lunacy of New York called the attention of the Legislature to the necessity for some special provision for epileptics. No good came of their recommendations at that time. In 1878 the State Board of Charities referred to the subject, but their recommendations likewise bore no fruit.

Through its State Board of Charities, Ohio was the first State to adopt the colony-system. Efforts toward that end were begun in 1890, and on November 12, 1891, the corner-stone of this beneficent institution was laid at Gallipolis.

There is one very serious fault to be found with the Ohio colony, and that is its official name, the "Asylum for Epileptics and Epileptic Insane." "Insane" and "asylum" are both decidedly objectionable words. They should never be applied to institutions in which the sick are cared for and healed.

In 1892 Massachusetts sought to establish such a colony, but the Legislature of that State failed to take the necessary action.

The Lunacy Committee of the Board of Public Charities in Pennsylvania has been earnestly engaged for two years or more in trying to secure a "State institution" for the exclusive accommodation, care, and treatment of epileptics upon an industrial basis.

Michigan has enacted a law "providing for the care and treatment of epileptics and the feeble-minded in separate buildings on the cottage-plan."

In 1891 the State Commission in Lunacy in New York urged the establishment of a State hospital for the exclusive care and treatment of sane epileptics. Through the persistent and earnest efforts of the State Charities' Aid Association a bill was passed by the Legislature of this State in 1892, authorizing the State Board of Charities to "select a suitable site on which to establish an institution on the colony-plan for the medical treatment, care, education, and employment of epileptics, and to prepare plans and estimates of cost of buildings, and submit the same to the next Legislature." An excellent site, consisting of 1872 acres in the Genesee Valley, was found by the Board, and a bill providing for its purchase introduced in the Legislature in 1893. The bill passed with the almost unanimous indorsement of the members of the Legislature and general public approval. It was vetoed by the Governor for economic reasons. In a modified form the same bill passed the following Legislature and was approved by the Governor.

It was the original intention of the promoters of this great charity to call it the "Sonyea Colony," *sonyea* being an old Indian name signifying "sunshine." This was abandoned, however, after the death of the late Oscar Craig, at the time President of the State Board of Charities, and it was decided to honor that good citizen by naming the new home for epileptics "Craig Colony."

Briefly, it is the object of the colony "to secure the humane, curative, scientific, and economical treatment and care of epileptics, exclusive of insane epileptics." This means that widely diverse and common-sense methods and means will be employed to alleviate the suffering of the epileptic. It means that in addition to medical and surgical treatment, applied in accordance with the light of modern science, Nature, the great restorer, will have an opportunity to do her best. With an abundance of pure air, sunshine, hygienic surroundings, wholesome and well-regulated diet, and physical labor adapted to the condition of each one required to perform it, the beneficiaries of this great charity certainly ought to be rendered far more capable of enduring that which, after fair trial, cannot be cured. They will engage in industrial pursuits of all kinds; agricultural, mechanical, carpentering, cabinet-work, the canning and preserving of fruit, berries, etc., and it is expected that within the course of a short time the colony will be placed upon a self-supporting basis.

Two classes of cases will be received: State and private. It is provided in the law that creates the colony that the State shall pay annually a sum not exceeding two hundred and fifty dollars for the support of indigent patients. In addition to this, it is made incumbent upon the Supervisors of the County from which the patient comes to send to the colony annually the sum of thirty dollars for the purpose of providing the patient with clothing.

Private patients are to be admitted to the colony

by consent of the managers and superintendent upon substantially the same conditions that govern the admission of private patients to hospitals in general. If an epileptic becomes insane while an inhabitant of the colony, he is to be sent to the State Hospital in the district in which he formerly resided. Patients are to be discharged by the superintendent on the approval of the managers.

An excellent feature of that part of the law pertaining to the discharge of patients states that "no epileptic patient shall be returned to any poor-house directly through a superintendent of the poor, or otherwise."

The colony is to be governed by a Board of Managers appointed by the Governor. Each manager serves for five years. The managers are to appoint a superintendent, who must be qualified by the Civil Service Commission as to his fitness for the position.

This radical departure in the treatment of the epileptic ought to produce a rich harvest of good. By reason of his unfortunate malady the epileptic is not permitted to become a part of our social fabric. He is forced from society and from the church, and he is everywhere driven from positions of employment and responsibility whereby he seeks to gain a livelihood. Although he may suffer but slightly by reason of his attack, he is often forced to mingle with the inmates of almshouses and hospitals for the insane, and with the more wretchedly afflicted of his own class.

The colony-system in the care and treatment of this enormous class of unfortunate dependents promises happy results. Time, in other countries, has already demonstrated most conclusively its worth.

70 WEST EIGHTY-EIGHTH STREET.

SYPHILIS BY CONCEPTION.[1]

BY GEORGE DUFFIELD, M.D.,

PROFESSOR OF CLINICAL MEDICINE IN THE DETROIT COLLEGE OF MEDICINE, ATTENDING PHYSICIAN TO HARPER HOSPITAL, ETC.

SYPHILIS is a disease worthy of the most serious thought and consideration by every specialist and general practitioner. The disease is on the increase, is widely diffused, and is to be found in all countries, owing to the utter lack of sanitary control. The cases seen in private, hospital or dispensary practice, and which leave our care as soon as the annoying symptoms have been relieved, either from ignorance or criminal carelessness go out to relapse and spread the disease broadcast among the innocent of the land.

In every large city there are hundreds of syphilitics with active contagious lesions who are daily in our streets, drinking at the public fountains, or using the one glass in an ordinary railroad car or steamboat, at which innocent women or children seek to quench their thirst, little dreaming that a virus ten thousand times worse than the poison of the rattlesnake lurks on the cup. I appeal to your sympathies to show you that one of the diseases with which we come in daily contact is in our midst to an alarming degree, and your children and mine may be exposed to this fearful contagion. Extra-genital syphilitic infection is much more common than is generally supposed. The cases in which the origin of the disease is a mystery, and cannot be solved by the physician, often come under this form of infection.

Dr. Myles Standish, in the *Boston Medical Journal* of recent date, states that the public towel found in workshops, railroad toilet-rooms, and public wash-rooms, is often infected with syphilitic virus, and reports two cases of the disease that could be traced to this source. In the first instance, a married man became infected, and though warned, infected his wife; in the second a brakeman became infected. In both the primary sore developed upon the eyelids.

> "The individual with syphilis, therefore, is not only in danger of communicating the disease in marital relations, and constantly does so, but is also likely to transmit more or less of the taint to the offspring if they survive, and is likewise a constant menace to society by virtue of the contagious character of the disease."[1]

The works of Hutchinson and others give abundant testimony to the dire effects on the progeny of those affected with syphilis:

> "It must be remembered that just as syphilis can diminish the viability of the product of conception, and cause the death of the child just before or soon after birth, so it causes loss of life earlier in conception, and gives rise to frequent abortion."

As has been stated, this mortality of fetal life is not the only ill that flesh is heir to when syphilis has been acquired; and such an inheritance is a curse indeed.

The case I am about to report is still shrouded in mystery as to the mode of infection and development.

About the middle of September, 1893, a man of vigorous constitution, strong, robust, aged thirty, consulted me for certain irregular, dark, hyperemic spots that had developed on the palms of his hands. At first they appeared as small, red points; they did not itch or cause any pain or irritation, and vanished on pressure, only to return as soon as the pressure was removed. The wrists, arms, face, and neck were white and free from spots like those on the palms. The hands were very heavily muscled, were strong and showed points of callus the result of work on galvanized iron. The man supposed that

[1] Read before the Michigan State Medical Society, Lansing, May 4, 1894.

[1] Bulkley: "Syphilis in the Innocent." 1894.

he had been poisoned by the iron or some of the tools or chemicals that he had been handling. I advised him to rest a few days and wash his hands in hot soda-water so as to remove all stains and grease. This he did, and the spots became bright rose-pink in color and irregular in shape. As I have always been suspicious of palmar eruptions, and fearing that I had a case of syphilis to deal with, I made a careful examination of the patient's body, throat, and nose, but with negative results. There was no history of having had a chancre, hard or soft, but there had been an attack of gonorrhea nine years before. Had the man contracted syphilis at that time, secondary symptoms would long before have manifested themselves. Being uncertain as to the condition present, I sent him to Dr. A. E. Carrier, who thought the eruption of an erythematous nature with possibly a syphilitic origin.

About the first of November the man called on me again. There were now a good many more erythematous spots upon the palms and also upon the wrists. A few dry, scaly patches appeared upon the scalp, upper lip and eyebrows, causing the hair, moustache and eyebrows to fall out. Upon the scrotum there were half a dozen spots of the same color as those upon his hands. Upon the prepuce there was a point that was thickened. This was not seen at first; not until it was taken between the thumb and finger was it appreciable that there was any change in the tissues. It was not sensitive, but was simply an induration without erosion. There was no discoloration, no secretion from it, nor had there been. The patient claimed that he had never noticed it himself—but I doubt his statement. He declared that he had never had any intercourse away from home since he had been married, nor had he had sore-throat or a mucous patch. His wife I had known for four years. She was twenty-seven years of age, and had had one miscarriage two years after her marriage, after carrying water and coal to the second story. She had never had a skin-affection, but three years ago had a severe attack of diphtheria, since which time she has been in fair health.

On December 20th the husband told me that his wife had become pregnant, the second time since their marriage, seven years before, and wished me to call and make the necessary examination and give needed directions. Personally I was anxious to make this examination, to see whether my suspicions were well grounded as to the husband's syphilis and whether or not he had inoculated his wife. The examination was made with great care. There was no vaginal discharge and had never been; there was no history of dysmenorrhea or displacement, no swelling of the vulva and no enlarged glands in the vulva or groins. There were no indurated points in the vagina. There was no rash, no sore-throat, no loss of hair; there was absolutely nothing to suggest that the woman had been exposed to or had absorbed syphilitic virus. The pregnancy had advanced about five and one-half months, the last menstruation having taken place in the early part of July. The fetal movements had been felt and the placental bruit was plainly heard.

On January 15th, 1894, the woman called at my office suffering from fever and sore-throat. The tonsils were swollen and red. All her bones ached, but more especially those of the lower extremities. She had severe headache at night. The temperature stood at 102.5°. The attack simulated one of severe tonsillitis complicated with rheumatism. The symptoms were suggestive of syphilitic fever, but there were so many symptoms wanting that I thought it best to wait until some positive sign should show itself. The woman was given a mild gargle, with salol and phenacetin, and in about four days the temperature had fallen to normal. With the subsidence of the fever red spots broke out on the lower part of the abdomen, which she thought resembled the spots her husband had had on his hands in the summer. In a day or two a bright-red rash appeared upon the abdomen, confining itself to the skin over the enlarged uterus. It did not extend to the thorax or the limbs. It was undoubtedly a syphilitic roseola. Mucous patches appeared upon the tonsils, the soft palate, the tongue, and the buccal mucous membrane, and slight glandular enlargement in the groins accompanied the rash. Dr. H. A. Cleland saw the woman in consultation at this time and confirmed the diagnosis. He thought that the husband's initial lesion had been in the urethra—or at least that it had been hidden. The symptoms as found in the wife were proof-positive of syphilitic infection. She was put upon a strong solution of mercuric chlorid until marked physiologic effects showed themselves, when she was given a pill of protiodid, gr. ¼. The mucous patches were touched frequently with the solid stick of silver nitrate. In a few weeks the rash and mucous patches entirely disappeared, and there has since been no return of syphilitic manifestations.

I hoped that thorough mercurial saturation of the mother might have a beneficial effect upon the child *in utero*, which was undoubtedly the source of the maternal infection. The treatment was continued for three months, but I failed to note any effect, unless it was that the child when born was alive. Nunn[1] says that in his experience the treatment of syphilis during pregnancy does not protect the child from congenital syphilis, but that when pregnancy has terminated, treatment is more successful.

Etienne[2] states that if treatment be employed throughout pregnancy, we may hope to obtain almost complete immunity from this infantile mortality.

In an article on "Hereditary Syphilis," W. Gilman Thompson[3] states that "when the father only is actively syphilitic, he usually transmits the disease to the child through the spermatozoa. This is called 'conceptional syphilis.'" Etienne states

[1] Medical Press and Circular, 1891.
[2] Annales de Gyn., April, 1892.
[3] Pepper's American Text-book of Medicine, 1893, vol. i.

that paternal syphilis is less injurious to the fetus than maternal syphilis.

Early in April I noted that the fetal heart-beats and placental bruit had become weaker, and that the movements felt by the mother were less vigorous, and therefore concluded that the child would be stillborn.

On April 7th, about 3 A.M., the waters broke while patient was asleep. The pains began soon after, were frequent and harassing during the day, but at 8 P.M. the os had dilated only an inch. The pains were very hard, but they made no impression upon the cervix, which appeared swollen and unyielding. The woman had been in labor twenty-four hours and still there was little dilatation of the os uteri.

Dr. W. P. Manton was called in consultation at about 2 A.M. He found a rigid os, dilated about two fingers, but not enough for the application of forceps. Hot douches were given and an hour and a half was spent in waiting for the dilatation, which would not take place, although the pains increased in severity. Pressure by the fingers inside the cervix finally caused sufficient dilatation to allow the introduction of a narrow-bladed forceps, the patient having first been anesthetized. The bones of the child's skull were very thin and could be easily indented by the finger; possibly this soft and unresisting head was one of the reasons why the dilatation of the cervix had not gone on more rapidly. During traction the cervix was drawn so far downward as to be visible at the vulva, and required to be pressed upward under the symphysis, as it greatly retarded the advancement of the head. After half an hour's hard work, with but slight advancement of the head, deep incision of the cervix was resorted to and delivery accomplished without further delay, the child being born alive.

The child's head was very pointed and the caput succedaneum large and conical in shape. The sutures of the skull were wide open, the fontanels very large, and the bones soft and yielding. The placenta was delivered by Credé's method, and was studded with syphilitic gummata of a yellowish-white color. The cord was long and thin and was wound once around the child's neck.

The child had an eruption on its body, especially under the arms and upon the sides of the thorax. The cervical glands were enlarged and the mouth showed mucous patches. The right eye, though cleansed at once, developed a catarrhal conjunctivitis. Within ten days after birth the child was covered from head to foot with an exanthematous rash—a syphilitic roseola.

The treatment of the child from the first has been by inunction, twenty drops of a 10 per cent. solution of mercury oleate being rubbed in twice a day with marked benefit, although since the physiologic limit has been reached there has been considerable colic following the inunction. On the twelfth day after delivery two small gummy nodules appeared on the occiput, showing the child to be in the tertiary stage; the fontanels are still widely dilated and also the sutures.

The mother has nursed the child, and the supply of milk has been large and satisfactory to the well-being of her offspring. No mucous patches have yet appeared upon the nipples.

Perhaps the treatment of the mother by mercury alone—when she was suffering from secondary symptoms—may be criticised by some, but the effect could not have been better. Not a single syphilitic symptom has reappeared. Potassium iodid has been withheld purposely, as it was thought that the secretion of milk would be better without its use, and so it has proved.

The question naturally arises: Was the syphilis of the newborn derived from the father or the mother? It is my opinion that the spermatozoa of the male contained the microörganism of the disease. The latest investigations on the cause of syphilis show that it is due to a microörganism, and Klebs, Birch-Hirschfeld, Lustgarten, and others have described a bacillus found in various syphilitic lesions.

In 1884 Lustgarten described a bacillus that he found in sections of syphilitic ulcers, and which he believed to be the specific agent in this disease. He described the bacillus as smaller than that of tuberculosis, and occurring in curved or straight forms, singly, in pairs and groups, but never as rods. It is never found free, but is contained in round cells. Other observers have verified the existence of the bacillus, but no satisfactory experimental evidence has as yet been adduced.[1]

As to when the paternal syphilis was acquired is still a mystery. It was undoubtedly due to sexual transgression, and at the time fecundation in the wife took place, the husband was saturated with the disease, which had never been modified by treatment. His spermatozoa must have been surcharged with the specific microörganisms or their spores, and their toxic effect was manifested in the fetus with terrible virulence.

Now that the mother is infected, the question naturally arises: From which source, father or child, did the contagion emanate? I think from the latter, because the syphilis of the baby is more advanced than that of the mother, and the mother's syphilis is of a lighter degree or more attenuated. Then, too, the lateness of the syphilitic fever in the mother must be considered—the fetus was five and one-half months old before the mother showed a symptom of infection.

Diday[2] believes that the mother does not become syphilitic through the placenta, but through the blood of the fetus begotten by a syphilitic man.

The large gummata of the placenta on the side of the child show almost conclusively that the latter

[1] Sternberg's Bacteriology.

[2] Archives de Tocologie, 1891, No. 11.

was syphilitic long before the mother, and proved itself to be a hot-bed of infection, the microörganisms easily passing from the diseased placenta to the innocent mother. The absence of all initial symptoms in the mother, it seems to me, is conclusive of the conceptional transmission.

The tendency and frequency of abortion in syphilitic mothers is a point of interest that should be mentioned here. Etienne states that the mortality of the fetus in cases in which the mother has never been under treatment is enormous, reaching 95.5 per cent. Abortion occurs in about two-thirds of all syphilitic women—that is, when the women are primarily affected and have skin-eruptions and mucous patches at the time of conception. If infection of the fetus occurs during the first three months, and is not subjected to treatment, the mortality during the first few days after delivery reaches 100 per cent.[1]

The chances for a premature discharge of the fetus when the father alone is syphilitic are considerable, but this does not occur so frequently as when the mother is primarily affected. Neumann states that if the father is syphilitic, and the mother first becomes so in the later months of pregnancy, the hereditary syphilis in the child will be intensified.

Recent notes on 1127 pregnancies, collected by Fournier, show that the infantile mortality, when the disease is inherited from the father alone, is 28 per cent.; when from the mother alone, 60 per cent.; when from both parents, 68 per cent. Le Pileur claims that not over 7 per cent. of the children of syphilitic parents outlive the disease.

Fournier attended a family in which the first three children were born at term, robust and healthy. The father then contracted syphilis, and his wife, becoming infected, aborted three times in succession. Fournier also reports that at the Lourcine Hospital 145 out of 167 of the children born of syphilitic mothers died in the institution within six weeks after birth. From trustworthy statistics of 441 cases only 100 children who had syphilitic mothers survived infancy, while 341 perished, 335 dying during the first year of life, and only six surviving this period.

Professor Chambrelent,[2] of Bordeaux, reports the case of a young married woman who contracted syphilis during her second pregnancy, but who had no initial lesion.

I know that some observers claim that infection of the fetus is more rapid than that of adults, partly from the fact that the new tissues resist less, and the blood, being so saturated, carries the disease into vital organs more rapidly than in an adult.

A fetus that develops and passes through the first and secondary stages of syphilis, and enters the tertiary period, all within 285 days from conception, displays a great shortening of the periods of the disease, and plainly demonstrates that inherited syphilis is much more virulent than is acquired syphilis in the adult.

The duration of syphilis is still a matter of discussion. Thompson puts the duration of the initial lesion at six weeks, the secondary symptoms at from two months to three years, and the tertiary period as beginning between the third and sixth years, and lasting for twenty years or more.

When the treatment has been systematically carried out for two and one-half, or better, three years, and there is no return of symptoms within six months, the patient may be regarded as cured, and he may marry without endangering mother or offspring.

The transmission of syphilis by mothers who have the disease, even though they have been under treatment, is well illustrated by Nunn,[1] in the case of an infected woman aged sixty, whose daughter gave birth to an infant with symptoms of syphilis. The father of this infant could not be proved to be syphilitic. The case shows that syphilis is transmitted even to the third generation.

[1] Etienne, Annales de Gynécologie, April, 1892.

[2] Archives de Tocologie et de Gynécologie.

CLINICAL MEMORANDA.

TWO CASES ILLUSTRATING THE IMPORTANCE OF COMPLETELY EMPTYING THE UTERUS IMMEDIATELY AFTER MISCARRIAGE; OPERATION FOR ABDOMINAL EXTRA-UTERINE PREGNANCY AND REMOVAL OF FIBROMA OF UTERUS.

By EDWIN K. BALLARD, M.D.,
ASSISTANT SURGEON TO HOSPITAL FOR THE WOMEN OF MARYLAND, BALTIMORE.

Case 1.—Some months ago I was called to see B. F., about thirty-five years old, a colored woman, married, and the mother of four children. She complained of having felt badly for some time, perhaps two weeks or more. She did not present any symptoms of definite trouble, but merely said that she was not as well able as usual to do her work, felt weak and had some headache and a poor appetite. Questioning failed to elicit anything more definite upon which to base a diagnosis; so a tonic was prescribed, and a second visit promised in about a week. At the end of that time I found her feeling and looking much worse, with a temperature of about 101°, and stating that she had had slight chills. The pulse was somewhat rapid, and symptomatically the case looked like one of malarial fever; so five grains of quinin were prescribed three times a day, with a suitable dose of calomel at night.

At my next visit, soon afterward, I got a more com-

[1] The Medical Press and Circular, No. 2742, 1891.

plete and truthful history, and one that began to point to the cause of the trouble. The woman then told me that about three or four months previous to my first visit she knew herself to be pregnant, as evinced by well-known symptoms that had become familiar to her in several previous experiences. Everything went well until within a number of weeks before my first visit, when she had suffered a sudden and profuse flooding, losing a large quantity of blood, and passing very large lumps, which she could not describe more accurately than that they were large and looked like liver or flesh. After the hemorrhage her abdomen began to diminish in size, the invariable sensations felt during her pregnancies left her, and in their stead ill-health had crept on; her weight had decreased, and, varying in quantity and constancy, the bloody discharge had continued and grown more unendurable by acquiring a very offensive odor.

I carefully explained the seriousness of her condition, that she had evidently miscarried at the time of the flooding, but that her womb certainly contained something to keep up the bleeding, and which was poisoning her. Permission for an examination was asked, with the comment that an operation would no doubt be required. Though daily growing worse, the woman flatly refused to allow a vaginal examination, and requested something for the discharge. With regret at her stupidity, I ordered an antiseptic vaginal douche, feeling sure she would eventually yield in preference to the risk of dying. After a few more days, during which her pulse grew weaker and her temperature remained several degrees above normal, although she was fully under the influence of quinin, she consented to an operation, provided no preliminary examination be required. The indications by this time were so plain, in fact, so urgent, that I determined to go ahead without an examination beforehand, or, after getting her under chloroform, to abandon the operation if it were unnecessary.

When the operation was begun the os uteri was sufficiently dilated to admit a finger, and discharging from the cavity of the uterus an offensive fluid mixed with shreds of decomposing tissue. The probe passed without resistance to the depth of seven inches, a fact that surprised me, as I expected to find the uterus more contracted after such a length of time from the supposed miscarriage. The cervix was then dilated and the uterus thoroughly and carefully curetted, removing a quantity of broken-down membrane and other tissue, until the curet failed to bring away any more and grated against the firm uterine wall. The uterine cavity was next gently syringed with warm carbolized water, and I was preparing to mop it with an antiseptic astringent when the uterus gave a spasmodic contraction of some violence, and to my astonishment a tiny white foot presented through the external os. I seized it with forceps, withdrawing it and a leg, and continuing with the use of forceps and curet, until a whole fetus, three inches long, was delivered in sections. A second fetus followed the first, and was removed in like manner, after which the uterus was found contracted down to a size of about four inches, and I felt sure it was empty. It was again irrigated and swabbed out with a solution of Monsel's solution and carbolic acid in glycerin. Following the operation, the patient's temperature immediately began to decline, and in two days was normal. The discharge, which had continued about a month, ceased, and she made a rapid and perfect recovery. She has been in good health ever since, and, in addition, has been delivered of a healthy infant.

This case and the following one illustrates, among other practical points, with what tenacity and persistence the uterus at times retains bits of membrane, or even a whole fetus after its death. And they also point to the only rational and safe treatment of such cases, viz., immediate and complete emptying of the uterus. If hemorrhage continue after miscarriage, it is dangerous folly to temporize with the use of ergot and other drugs in the expectation that a serious condition will right itself. There is a possibility that it will, if let alone, as in a number of other pathologic states, but it is the duty of a physician, both to his patient and himself, to aid Nature by the speediest and safest methods; and to neglect a miscarriage is neither, but is a direct invitation to hemorrhage, sepsis, inflammation, and similar evils that often lead to chronic invalidism or death. As in these two instances, patients will from various motives intentionally or ignorantly conceal facts from their attendants, causing them to grope in the dark or be entirely misled, but they should persistently search after causes, and a direct physical examination, not only after suspected miscarriage, but in a number of obscure affections, will be a simple procedure, as well as prove a revelation, which endless questioning could never elicit.

CASE II.—Miss L. T., twenty-one years old, was a patient at the Hospital for the Women of Maryland in 1892. Soon after her discharge she was married, and in about three months, during the course of a miscarriage, she hastily summoned me one night, the messenger, a member of her family, saying that she was bleeding profusely. Upon arriving at the house I found her lying on a sofa downstairs, having been suddenly taken with a flooding, and unable to reach her bedroom. As it was time for her menstrual period, and she was suffering somewhat the same as she had at previous periods, except that the flow was more profuse, she refused to allow a vaginal examination, though urgently advised to submit to one. After close questioning I concluded she must be undergoing a miscarriage, and so expressed my opinion to the family, but the patient obdurately refused to permit an examination. She was then quite weak from the loss of blood, and in the course of four days, her condition having become alarming, and the hemorrhage still continuing, she agreed to an examination. The os uteri was found widely dilated, and an irregular mass blocking it up. The patient's condition at this time was bad, with evidences of septic infection. On the next day I thoroughly curetted the uterus, removing a quantity of offensive decomposed membrane, after which the uterine cavity was irrigated with a carbolized solution and mopped out with diluted Monsel's solution and carbolic acid. The dangerous symptoms receded immediately after this operation, and the woman made a good recovery, though convalescence was slow.

For several years previous to this the patient had been subject to constant pelvic pains, which progressively grew worse, and were found to be due to inflamed and prolapsed ovaries. The removal of these organs was advised, but before deciding whether or not to accept

operation the patient again became pregnant. All the symptoms of pregnancy, including troublesome nausea and vomiting, continued for three months and then ceased. The patient's former suffering also ceased, and she felt better than for a number of years. As time passed, no abdominal enlargement occurred, as was expected, and it became a question as to the cause of such a change in her feelings, both regarding pregnancy and the state of her general health, which was good.

A vaginal examination, made about five months after the symptoms of pregnancy began, did not throw much light on the subject; the ovaries were prolapsed and painful as before; no signs of pregnancy, and no abdominal enlargement were present, and no tumor could be discovered by palpation. Menstruation had ceased for five months, and a probe was not passed. The woman was advised to await developments, and to do nothing unless there seemed to arise some reason for interference.

Six months after the last menstruation I was again summoned, and found the patient in great pain, and passing blood. Though this was the date of expected menstruation, this time she made no objection to an examination, and I found a round object protruding from the mouth of the uterus. Upon removing this with my finger her pain ceased at once. An examination proved the object to be a uterine mole the size of a lemon. Then, of course, the behavior of the case was immediately cleared up; the patient had become pregnant; death of the fetus occurred after a certain time, and instead of being expelled, as is usual, it degenerated into the rare phenomenon of a so-called uterine mole, expulsion eventually following. To feel sure that the uterus had been emptied of its contents—and it is a point to be especially noticed—though everything seemed to have passed, I curetted the cavity of the viscus, removing a few small fragments of membrane. Recovery from the miscarriage was prompt.

The pelvic pains returned in a short time with increased severity, rendering the woman unfit for her duties or for pleasure, and as she was rapidly declining in health, removal of the ovaries was again advised. On May 15, 1894, at the Woman's Hospital, I removed both ovaries and oviducts. The left ovary was almost entirely destroyed by a cystic growth. Previous to operation there had been some uterine hemorrhage for two or three weeks, and the uterus was somewhat enlarged, presumably from subinvolution. Following the passage of the mole, menstruation had recurred at regular intervals. Six days after the oöphorectomy, though the patient had been progressing favorably in every respect, she was seized with violent abdominal pain, and by a vaginal examination a small mass was found presenting at the dilated mouth of the uterus. The clearing away of some clots relieved her pain at once, but the mass could not be removed by my finger. The condition of the patient suggested that at the time of operation a pregnancy in its early stage had been overlooked, though that seemed impossible.

The patient was again chloroformed, the protruding object removed with forceps, and the uterus thoroughly curetted, some very strongly adhering bits of membrane being scraped out. The mass proved to be not a recent embryo, but a thick fragment of membrane remaining from the passage of the mole, despite the precautionary curetting three months before the time of the last operation.

Beyond a moderate amount of shock, the curetting did not unpleasantly affect the patient, nor in any way disturb the favorable progress of affairs after celiotomy. The presence of the retained membrane explained the cause of the uterine enlargement preceding the celiotomy, as well as the metrorrhagia. In a similar future case I should curet a second time *before* performing celiotomy, and not risk compromising results by ignoring the possibility of a necessity for curetting so soon after a capital operation. In this instance, however, I felt so sure that the uterus was empty that the curetting did not seem necessary.

CASE III. *Extra-uterine pregnancy complicated by uterine fibroma.*—The patient was a colored woman, forty-five years old, married, and the mother of eleven children. When first seen by me, and at the time of operation, her history was that she had been in bad health for over a year, and had an abdominal enlargement. She was very weak, and for some time had been unable to work. Questioning elicited no further information beyond the fact that about a year previously she had missed her menstrual period once or twice, after which she became regular, as usual. Being near the menopause, and not presenting special symptoms, this slight irregularity of menstruation did not seem of importance. Upon physical examination a mass the size of a small cocoanut was found in the pelvis and attached to the uterus, which was not much beyond the normal size. On palpation through the thin abdominal walls a large irregular tumor could be felt, apparently a fibroma, but which possessed the peculiarity of a slightly movable, angular projection from its surface, which I remarked as rather unusual to occur in a fibroid. By bimanual palpation through the vagina the mass in the pelvis and the lump in the belly were found to form a single body, freely movable by pressure brought to bear against one or the other alternately; nor was there anything to indicate that the whole was not an individual solid tumor.

My opinion, based on the single examination and what little history was given, which amounted to nothing, was that the patient suffered from a uterine fibroma that had existed a much longer time than she imagined, as no symptoms other than abdominal enlargement had attracted her attention. Her condition urgently demanded relief, especially as she was obliged to earn a living, and after a full explanation to her and her husband that it was uncertain what could be accomplished, if anything, and also that the operation was very dangerous, both consented to risk it.

The place of operation was unique and picturesque, but by no means convenient, its chief advantage, and a very important one, being an abundance of pure air. The woman lived in a small one-room log cabin on a mountain top, commanding a view for miles across a lovely and historic country. An old door, full of shot from former target-service, laid across a chair and table, formed an operating-table. The place of a sterilizer was substituted by an old iron pot, over an open fire outside of the house, which did not boast of a stove. The male members of the family attended to the pot and furnished hot water on demand.

The attending physician had ordered the house to be

scrubbed and whitewashed; ventilation was ample, and under the circumstances the surroundings were as favorable as they could be made, and beyond its surgical aspect the operation was one of more than ordinary interest. The patient had been properly prepared.

Through a long abdominal incision the state of affairs was much more plainly seen than could be reasoned out or determined in any possible way before the operation, as is so many times true in intra-abdominal surgery. Instead of simply a large fibroid of the uterus, it developed that in addition, we had to deal with an abdominal extra-uterine pregnancy. Enclosed in a thin sac was a fetus weighing about five pounds, that had been dead for a considerable time; the sac, firmly adherent to all surrounding viscera, forming with its contents and the uterus and a fibroid growing from the uterus, a large, consolidated tumor.

Through an opening made into the sac, the fetus was easily lifted out, and then it appeared that its natural attachments were absent, there being no placenta and no umbilical cord, this organ being represented by a slight knob on the child's abdomen. The fetus itself was much distorted, and its limbs and body firmly glued together by dense organized adhesions. The fate of the cord and placenta was merely a matter of speculation; they could not have escaped detection, as the whole abdominal cavity and its contents were open to plain view.

The removal of the sac was not such an easy and safe proceeding. The bowels and other viscera were densely adherent to it, but by carefully separating the adhesions with the finger-nail and ligating and then cutting away sections of the sac when necessary, the whole was removed without troublesome hemorrhage or injury to the viscera.

Having disposed of the sac, the fibroid was attacked. Its pedicle was round, with a web-shaped projection that was ligated separately, and then the main pedicle carefully ligated with very heavy Chinese silk. The tumor was cut off and its stump freely mopped with Monsel's solution. The fibroid proved to be cystic. Considerable oozing took place from the torn surface of the adhesions, but ceased upon pressure and the free flushing of the abdominal cavity with boiled water. The pedicle was left within the abdomen, the wound closed with silk sutures, and for fear of future hemorrhage, as oozing had been free, a glass drainage-tube was inserted, though I should have preferred not to have been obliged to use it.

There was no noteworthy shock during the operation, and almost as soon as she was put to bed the patient awoke and wanted to talk. She suffered no nausea or pain, and, considering the severity of such an operation on an ill woman, the outlook seemed promising. At my visit in the afternoon she was comfortable. That ended my personal care of the patient, but after my return to Baltimore her physician reported in a day or two that she was doing well; the drainage-tube had been removed, the bowels had moved, the temperature had become normal, and the patient was anxious to eat, and comfortable in every way. Five days following the operation, however, she began to fail, and at the end of a week died. The wound healed, and all seemed to progress favorably until a few days before death, the cause of which was not satisfactorily determined, but may have been due to septicemia or exhaustion preceding and increased by the operation.

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A CASE OF URTICARIA WITH COINCIDENT GLYCOSURIA.[1]

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A DISEASE like urticaria, of which the essential feature is instability of the vasomotor nerves, paroxysmal in its manifestations, and in which the paroxysms are induced by intrinsic or extrinsic irritation, mechanical or chemic, acting centrally or peripherally, may have its origin in widely different and in remote and obscure derangements of the organism; while the occurrence of pathologic conditions and processes, each in itself sufficient to account for the disorder, and each intensifying the morbid influence of the other, may make it difficult to determine the ultimate etiologic factor.

Owing to the physiologic relation between the skin and the alimentary canal, disturbance of the latter is a common element in disease of the skin, and probably the most frequent cause of urticaria. Glycosuria, on the other hand, while it is known to give rise to various pruriginous eruptions, is one of the less common causes of this common lesion. Kaposi[2] enumerates this affection among the dermatoses diabetica, and Crocker, in his text-book on *Diseases of the Skin*, mentions glycosuria in a long, classified list of causes of urticaria.

In the case about to be described gastro-intestinal derangement, with all its complexities, was still further complicated by the presence of sugar in the urine. The patient, a lad eleven years of age, came to Dr. Cantrell's clinic at the Philadelphia Polyclinic Hospital, February 27, 1894, accompanied by his mother, and from her the following history was obtained.

Both parents are living and well. The patient has three brothers, all in good health. The youngest, four years of age, was then under treatment for eczema, but otherwise was well, as his bright, rosy face amply testified. The paternal grandmother had rheumatism, and a paternal uncle died of chronic nephritis induced by exposure while intoxicated. No other member of the family has ever had urticaria.

The patient is slender and fair, and has naturally a somewhat fragile appearance, to which a striking pallor and conspicuous blue veins about the temples lend an exaggerated effect. When he was two years old he had an attack of measles and since then he has been "delicate." Prior to this he was vigorous. Between three and four years ago he had an illness which was pronounced "malaria" by the attending physician. For two years past he has had urticaria. He is troubled with dyspepsia and constipation, complains of headache and vague pains in the limbs and elsewhere, is easily fatigued and is very sensitive to cold. He is also subject to "nervous spells," as his mother expresses it, of

[1] Read before the Alumnæ Medical Society, June 9, 1894.

[2] Wien. med. Presse, 1883, No. 23.

two and three days' duration, which are characterized by great restlessness, followed by an apathetic and drowsy condition. They are ushered in by severe headache, but otherwise are unaccompanied by distress, and appear to have no causal relation to the urticaria.

On his first visit the patient had a few pink wheals on the arms—all that remained of a profuse eruption that had appeared on his getting out of bed that morning. Factitious wheals were easily produced by local irritation. The efflorescence was said to be usually most abundant on the extremities, and to consist of "spots and bumps," varying in superficies from a pin's-head to a dime. As a rule, not a trace of it remained when he arrived at the clinic. On two occasions there was a papular eruption on the hands and wrists, with here and there a large white wheal with an encompassing pink halo, and several small patchy areas of hyperemia. The paroxysms were not observed to occur after meals, and do not appear to be associated with the taking of any special article of food, but exposure to cold was invariably followed by an evolution of wheals.

The itching was most intense just prior to the appearance of the eruption, and the boy's remark that "It doesn't itch when it's all out," bears out Jacquet's reversal of the old formula: "Ce n'est pas l'eruption qui est prurigineuse, c'est le prurit qui est eruptif."[1] The patient complained of his skin feeling dry and uncomfortable; it was, however, soft and smooth to the touch, and frequently bedewed with moisture, and his sensations were probably due to the anemic condition of the tissue and its saturation with sugar.

The chronicity of the urticaria, and the frail, depressed condition of the patient, led to a careful and extended investigation of his case. Physical examination yielded negative results. The complaint of headache suggested that the eyes might be at fault, but the ophthalmologist reported in effect that nothing was amiss with the eyes; a slight refraction-error, not sufficient to require lenses, being the only departure from the normal. In an examination of the blood the estimate of hemoglobin was 75 per cent., showing that the boy's extraordinary pallor was only partly caused by the anemia which it suggested, and was perhaps mainly due to an unequal distribution of the blood—in this case to determination of blood to the abdominal splanchnic vascular area, in consequence of chronic digestive disturbance, which sometimes gives rise to a very pale and anemic skin without any deficiency in the hemoglobin. Analysis of the urine revealed the presence of sugar. The specific gravity was 1026, and all the physical properties were those of saccharine urine. A suitable regimen was thereupon advised, but as subsequent analysis gave only a partial reduction in the amount of sugar, probably because instructions were not closely followed, codein, in conjunction with strychnin and quinin, was prescribed. Under the influence of this combination the sugar promptly disappeared and the specific gravity declined to 1018. Quantitative analysis made prior to the administration of codein, but after the patient was on a diet from which starches were largely and sugar entirely excluded, gave 0.9 per cent. of sugar.

[1] "On the Pathogeny of Urticaria, etc.," Gazette des Hôpitaux, 1892, lxv, 1259.

Polyuria and concomitant symptoms of diabetes were wanting, and the progress of the case was contrary to that of this grave constitutional disorder in children, which is rapidly from bad to worse. So far as could be learned, there was no hereditary influence to account for the glycosuria, nor could a history of somatic or psychic trauma be obtained, and it must be regarded either as a transitory functional disturbance, such as is said to be not uncommon in markedly neurotic persons, or as a "paroxysmal neurosis" corresponding to the uric-acid shower in persons having the gouty diathesis, and sometimes occurring together or alternating in the same individual.

Examinations of the urine were made at regular intervals during the twelve weeks the patient was under observation, and it remained free from sugar both during the administration of codein and also after its discontinuance. The sediment was always inappreciable in amount, but the patient's mother said that at times there was a "red, sandy settling"—probably uric acid. Boiling almost invariably precipitated a cloud of calcium phosphate. In another case of urticaria, in a colored woman who presented herself at the clinic at the same time, analysis of the urine was attended with similar results—sugar and phosphates were in excess. (Further observation was not made in this case, as the patient did not return.) Phosphaturia is not uncommon in dyspepsia, and J. F. Goodhart,[1] in a paper on "Transient Glycosuria of Neurotic Origin," mentions a case in which the glycosuria was accompanied by persistent phosphaturia.

Urticaria usually grows worse on the approach of warm weather, but, nevertheless, with the complete disappearance of the sugar from the urine the patient began to improve. The intervals between the paroxysms lengthened, and the pruritus diminished, this giving him so little annoyance now that he no longer takes the trouble to apply the phenol-lotion that he previously used with benefit. Although the spontaneous eruption appears only every two or three days, instead of two or three times a day, as before, the cutaneous irritability persists, and factitious wheals are as readily provoked as at first. Letters or figures traced with the finger-nail or other suitable means stand out in strong relief against the surrounding skin as white, raised lines, with hyperemic borders. The irritation (the writing) is followed by a momentary linear pallor replaced by a faint red line, which in a few seconds becomes white and prominent, while at the same time parallel pink zones develop on either side. The white line has the appearance, and gives to the touch the impression of a hard, distended vein, or of a cord just beneath the epidermis, lifting it. It may be seen to swell for from four to five minutes, and synchronously the hyperemic zones broaden, their width depending on the vascularity of the part. The phenomena are said to correspond to a transient initial dilatation of the capillaries of the affected area, quickly followed, first by spasmodic contraction, and then by paralytic dilatation, with serous exudation into the papillary layer. The development of the factitious wheal is usually accompanied by tingling and heat, but in this case subjective sensations were not experienced; the

[1] British Medical Journal, 1889, ii, 1381.

patient said he should not be aware of the wheal if he did not see it. The central edematous portion is analgesic, from the benumbing pressure of the exudate on the sensory nerves, and the patient could not distinguish the point from the head of a pin applied to it. The hyperemic zones are said to be hyperesthetic, but in this case they did not appear to be any more so than the adjacent normal skin. These wheals, like those which appear spontaneously, are evanescent; their average duration is half an hour, but they may persist for one, two, or three hours, and exceptionally for a much longer time, as in this case, in which, on one occasion, letters traced over the sternum at four o'clock in the afternoon had not entirely faded at nine o'clock the next morning. Cases are on record in which the wheals lasted twenty-four hours, and even two days. The vasomotor instability is usually heightened by warmth, but it is noteworthy that in this case the special factor in its exaltation is cold. On the occasion just referred to, when the factitious wheals were so persistent and the irritability was so excessive that mere contact was followed by an urticarial blush, there had been a sudden fall in the temperature the previous night, and the day was comparatively cold. Bronson[1] records a similar case, occurring in a woman in whom a paroxysm took place whenever the temperature was suddenly lowered, and who was always worse in cool, damp weather.

This unstable equilibrium of the cutaneous sensomotor nerves, in virtue of which wheals can be excited by local irritation, constitutes the dermographism of French writers, otherwise urticaria factitia. Barthélemy, who has recently made an exhaustive study of this condition, while he admits the clinical and anatomic identity of the induced and the spontaneous wheal, is of the opinion that urticaria and dermographism are not the same, and that even when they coexist and are due to the same cause they are, nevertheless, independent of each other. Dermographism he regards not as a disease *sui generis*, but as a state of the nervous system in which it is peculiarly susceptible to impressions—that is, to toxic influences. Two conditions are essential: (1) an irritable and excitable nervous system, innate or acquired; and (2) a toxic agent that affects the peripheral vasomotor nerves (cutaneous theory), or the centers in the cord and medulla (bulbar theory). Hysteria and the arthritic diathesis are supposed to determine a state of the nervous system favorable to dermographism, though, of course, this may occur in the absence of both. Mild and intense forms are recognized, the chief factor in the grade being the susceptibility of the nervous system and not the severity of the intoxication. Finally, this condition, "a genuine intra-cutaneous manifestation of hysteria," Barthélemy suggests, though not in itself serious, is an evidence of an established intoxication, of diminished resistance on the part of the nervous system, and is never found in health. It occurs in many diseases, especially those giving rise to auto-intoxication, is common in dyspepsia and neurasthenia, and exists in every case of genuine urticaria. Barthélemy also states that he has seen it in six cases of diabetes. The same author calls attention to the influence of toxins on the vasomotor centers, as demonstrated experimentally by Charcot and Bouchard.

Intravenous injection of a secretion-product of the bacillus pyocyaneus, called anektasin, by its inhibitory influence on the chemotactic susceptibility of the plasma, will prevent local non-inflammatory edema and even inflammatory edema. A contrary effect is obtained by ektasin, a ptomaïn isolated from tuberculin, which stimulates the vaso-dilator centers and augments vasomotor reaction, with consequent dilatation of capillaries, stasis, serous exudation, and diapedesis; and the circulatory ataxia in urticaria is explained on the supposition that toxins occurring in the organism, those of the alimentary canal in particular, have a similar action. On this view the latency of the disorder is comprehensible, and also its localization, when we remember that the dilator fibers govern local areas and do not influence the general circulation. The nervous system is charged, so to speak, and it needs but a touch to evoke a manifestation. More recently S. Mackenzie, in a clinical essay entitled "On the Nature of Urticaria,"[1] suggests that the distribution may be accounted for by stimulation of the nervous plexuses of the skin by *something* in the circulation, possibly a "metabolic by-product."

When for any reason digestion is delayed, and the ingesta remain too long in the several divisions of the alimentary canal, there is abnormal fermentation and putrefaction, with the development of toxins, to which not only the disordered function of the cutaneous vasomotor nerves may be ascribed, but also the headache, languor, and general *malaise* of which this patient complained. That the glycosuria served incidentally to aggravate the urticaria there can be no question, as the disappearance of the sugar from the urine was followed by very decided improvement; but the gastro-intestinal derangement still dominates the case, and probably was the cause of the skin-disease in its incipiency, as it is now that which perpetuates it. Another view might be taken, which in nowise controverts the foregoing. The glycosuria, the digestive disturbance, the "nervous spells," and so forth, may all be dependent on the gouty diathesis, which is certainly suggested by the patient's hereditary and clinical history, and which, then, is also the underlying cause of the urticaria.

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[1] Morrow's System of Genito-Urinary Diseases, Syphilology and Dermatology, vol. iii.

HEPATIC ABSCESS.

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The following cases of abscess of the liver occurred in my practice while stationed at Evansville, Indiana, in charge of the marine hospital at that port. In none of the cases could any history of malaria or of dysentery or other bowel-trouble be elicited, so that they must be classed etiologically as idiopathic.

The causes of hepatic abscess usually given are:

1. The ameba coli in cases of dysentery.

2. Suppurative inflammation in other parts of the body, especially in connection with the portal circulation or the branches of the inferior vena cava, as ulceration in typhoid fever, colitis, proctitis, appendicitis, pelvic and perineal abscess, and hemorrhoids; also septicemia and

[1] Brit. Journ. of Dermat., 1894, vi, 65.

pyemia, and injuries to the skull and other bones, producing osteomyelitis.

3. Foreign bodies and parasites, as gall-stones, needles, fish-bones, etc., from the alimentary canal, the ascaris lumbricoides, echinococcus, and tubercle-bacillus.

4. Traumatism, the skin not necessarily being broken.

5. Idiopathic, when, the cause being unknown, the disease is attributed to excessive heat, sudden chill, malaria, or the excessive use of alcohol.

Climate, race, age, and sex are to be considered as predisposing causes. Tropical and subtropical countries furnish most of the cases. The condition occurs in the negro as well as in the white man, but I cannot say which is the more predisposed. The large majority of cases occur during the active period of life—from twenty to fifty years of age. Sex is a very important factor, as it appears from the statistics collected that only about 3 per cent. of cases occur in women. As stated by Professor W. C. Dabney, the most important symptoms are directly connected with the liver, such as swelling, pain, and tenderness on pressure in the hepatic region. These symptoms, with irregular chills, fever, and sweats, give strong presumptive evidence of abscess of the liver.

According to Cyr, quoted in Sajous' *Annual*, if the abscess is located in the convex part of the liver, there is dyspnea and marked pain radiating toward the chest and shoulder, seldom jaundice; if located in the center, there is absence of local symptoms, but decided jaundice if the abscess be large; and when seated near the under surface there is an absence of thoracic symptoms, but stomach troubles, such as vomiting, are likely to exist. Chyluria is a symptom that should be remembered, in order to exclude pancreatic and hemato-parasitic diseases. It was not observed in any of my cases.

Without doubt the proper treatment is early incision, with free drainage, under aseptic conditions. Of six cases that I have seen treated in this way (including my own three), five recovered, and the sixth would probably have done so had not the operation been delayed until the abscess had opened into the right lung. The abscess-cavity was not irrigated in my cases. The pus being sterile, as a rule, irrigation seemed unnecessary, and I have seen it produce unpleasant symptoms.

Case I.—F. P., a white boatman, twenty-six years old, was admitted to the hospital on February 27, 1891, having suffered for five weeks with severe pain in the region of the liver, with irregular chills, fever, night-sweats, occasional vomiting and a dry cough. The bowels were constipated. There was no history of malaria or dysentery, but the patient had used alcoholics steadily for several years. There was evident tumefaction in the epigastrium and right hypochondrium, most marked at a point midway between the navel and the cartilage of the right ninth rib, where also the pain and tenderness were greatest. The liver-dulness in front extended from the fifth rib to the level of the umbilicus.

The stools were light in color, the urine dark, and thought to give a slight bile-reaction with chloroform, though it gave none with Gmelin's test.

For three weeks after admission to the hospital there was little change in the symptoms. The temperature, taken in the mouth, ranged from 37°–37.3° C. in the morning to 37.5°–38° in the evening; but the pain grew worse, requiring large doses of morphin for relief. It not being clear whether the case was one of abscess of the liver or one of obstruction of the cystic duct or bile-ducts, exploratory celiotomy was considered justifiable.

Chloroform was given, and under aseptic precautions an incision fifteen centimeters long was made through the skin and fascia from the most prominent part of the cartilage of the right ninth rib downward, parallel with the linea alba. The muscles were divided to the extent of ten centimeters, down to the peritoneum, which was found thickened, but not adherent to the liver.

All bleeding was arrested, and the peritoneum opened by an incision eight centimeters long, bringing the liver into view. Two fingers were introduced, and, as far as they could reach, the liver was felt, giving the sensation of a fluctuating tumor with thin walls. As there were no adhesions the visceral and parietal layers of peritoneum were stitched together with catgut, thus closing the peritoneal cavity and leaving about five centimeters of liver-surface exposed at the bottom of the wound, which was packed with iodoform-gauze and dressed. The next day firm adhesions were found to have formed, effectually sealing the peritoneal cavity. A knife was thrust into the liver, with the expectation of inducing a large outflow of pus, which, however, failed to appear even when the instrument had been inserted to the depth of two and one-half centimeters.

A large aspirating-needle was then tried, and at the depth of seven and one-half centimeters about sixty cubic centimeters of bloody pus were withdrawn. A finer needle was introduced in various directions in the liver-substance, to the depth of from five to eight centimeters, but only blood was found.

The wound was packed and dressed as before, and the dressing was changed about every fourth day. The pain gradually disappeared, the pulse and temperature became normal, and one month after the operation the patient was discharged, apparently recovered, with a considerable diminution in the size of the liver. Two years later there had been no return of the abscess, and the patient was in fair health.

Case II.—This case is of especial interest on account of the unusually large size of the abscess.

C. M., a negro laborer, about forty-five years old, was admitted to the hospital for treatment in September, 1891. According to his account he had been suffering with acute hepatitis for about a year. There was no history of malaria or dysentery, but of irregular chills and fever, sometimes rigors, followed by fever and profuse sweats, pain in the region of the liver, progressive weakness, emaciation, and dyspnea.

The pulse ranged from 90 to 100, the temperature from 38.9° C. to 39.5°. On examination no tender spot, fluctuation, or bulging between the ribs could be detected. The lower extremities were much swollen, and the dyspnea was great. The abdomen was enormously distended, especially over the region of the diaphragm, from which it gradually tapered above and below—the patient's body having much the appearance of a barrel. The patient was chloroformed, and under aseptic precautions an exploratory incision into the abdominal cavity was made in the median line, just above the navel, and of sufficient length to permit the introduction of the hand, by means of which a large fluctuating tumor of the right lobe of the liver was distinguished,

almost filling up the abdominal cavity. Strong adhesions were detected on the right side, at about the level of the eighth rib, and an incision was made from without into the liver, through the site of the adhesions, between the eighth and ninth ribs, in the axillary line. This was followed by a jet of pus, which, owing to the tension under which it had been retained, escaped with such force that it struck the wall about five feet above the floor, and thus a good deal was lost before it could be made to flow into the vessel provided for it.

About six liters (one and one-half gallons) of pus were caught in a vessel, and it was judged that fully two liters escaped on the floor, making, by a conservative estimate, a total of eight liters. The wound in the median line was closed with catgut sutures, and healed by primary union, without suppuration. A large rubber drainage-tube was passed into the abscess-cavity through the opening between the ribs, and secured in that position by a safety-pin and adhesive plaster, with just enough projecting to allow the introduction of a small cork. This cork was for a time removed once daily to allow the pus to escape, later less frequently, and at the same time the tube was gradually withdrawn as the cavity contracted, until it was removed entirely two months after the operation. The patient was discharged, recovered, December 15, 1891. When last heard from, in June, 1893, through the kindness of Dr. Edwin Walker, who assisted me at the operation, the patient was in good health.

CASE III.—J. R., a negro boatman, twenty-one years old, was admitted to the hospital on December 21, 1891. He had been suffering with severe pains in the right side and shoulder for three or four weeks. No history of malaria or dysentery could be elicited. No chills occurred, but there was acceleration of pulse and elevation of temperature, with profuse perspiration. On account of the severity of the pain and its location, with the other symptoms, abscess of the liver, with adhesions, was suspected, and proved by getting pus on the introduction of a hypodermatic needle. The abscess was opened by an incision in the axillary line between the eighth and ninth ribs, about seventy-five cubic centimeters of pus being evacuated. The symptoms improved, but in less than a week the temperature began to rise again. Under chloroform-anesthesia a careful examination of the abscess-cavity was made, when the finger broke into a second abscess just below the first, about the same quantity of pus being evacuated. An opening was made between the ninth and tenth ribs and a tube introduced, so as to drain the lowest part of the cavity. The patient gradually improved, and was discharged, recovered, April 1, 1892.

RETENTION OF URINE FOR ELEVEN DAYS.

BY J. H. McCARTNEY, M.D.,
SURGEON P. M. CUSTOMS AND SURGEON IN CHARGE OF THE METHODIST EPISCOPAL HOSPITAL, CHUNGKING, CHINA.

THE patient, a Chinese married lady, about twenty-one years old, had given birth to a medium-sized child eleven days previously to my having been called, and up to that time had passed no urine, with the exception of a little dribbling now and again. There was a constant desire to urinate, but the woman could not relieve herself.

On examination we found the abdomen greatly distended, to all appearances like that of a woman before labor. The external genitals were in a normal condition, with the exception of the left labium, which was somewhat swollen. The woman complained of having great pain and high fever, but no rigors. She had eaten nothing for three or four days. As she was greatly frightened, an anesthetic was given and a catheter introduced. The urine came away with great force, nearly six and a half quarts in all (the exact amount is not known, as some was spilled in the beginning). It had a high odor and dark-brown color. The woman made an uneventful recovery. Dr. Gross says that death usually occurs in these cases in from three to four days from uremic poisoning.

MEDICAL PROGRESS.

Successful Trephining in a Case of Traumatic Hemorrhage into the Brain.—HARRIS (*Lancet*, No. 3693, p. 1444) has reported the case of a man, forty-three years old, who came under observation in an unconscious condition three days after having fallen down a flight of stairs while intoxicated. He could be roused and attempted to answer questions, but his speech was thick and quite unintelligible. A day after the accident he had a fit, although he had never had one before, and he became unconscious. On a level with and about half an inch to the left of the external occipital protuberance was an irregular, oblique scalp-wound about an inch and a half in length and extending down to the bone; there were also severe contusions of the right arm and left thigh. Shortly after coming under observation the man became drowsy and could not be roused to speak, although he resisted any attempt at passive movement of his limbs, excepting the left arm, which to all appearances was in a state of complete paralysis. The pupils were dilated and equal, and responded sluggishly to light. The eyes were slightly deviated to the right. During the night the man had eighteen fits. These commenced with twitchings at the left angle of the mouth and of the fingers of the left hand, and were characterized by stertorous breathing, foaming at the mouth, convulsions, chiefly confined to the left side, the eyes being strongly deviated to the right, and consciousness being entirely lost. There was incontinence of urine and feces. The temperature was 101.8°. On the following day, the fits still persisting, forty grains of potassium bromid and twenty grains of chloral were ordered. A fit occurred twenty minutes after the draught, at 10 P.M. another, and a third during the night. For the following ten days the patient remained in a drowsy condition, at one time relapsing into complete unconsciousness, at another being sufficiently sensible to attempt to answer questions when shouted to him, but his speech was never intelligible. His temperature varied between 101° and 103°. His respirations were occasionally rapid, at other times labored. On one occasion he had an attack of syncope. During the last two days of this period there was complete insensibility of the left conjunctiva and cornea, and no reflex could be elicited. No abnormality was discoverable with the ophthalmoscope. On the twentieth day after the accident the patient became much worse; he remained quite

unconscious, with labored respiration, and appeared comatose. It was finally decided to trephine over the center for the left arm, and the operation was accordingly undertaken on the twenty-second day after the accident. Ptosis of the right eyelid and left facial paralysis had made their appearance. After a segment of bone had been removed the dura mater was found to be of dark-purplish hue, but otherwise appeared healthy. An incision into the membrane was followed by a spurt of dark, venous-looking blood, which exploration showed to come from the center of a large clot, conical in form, its apex pointing toward the center of the brain; the outer layers were degenerated and buffy. The greater part of this was removed, and the cavity was well syringed out; a drainage-tube was introduced; the soft parts were brought together with a few sutures, and the wound was dressed antiseptically. Before the patient was removed from the operation-table the left corneal reflex was easily obtainable. There was some recurrent hemorrhage from the interior of the seat of the clot on the night of the operation. On the fifth and sixth days following it the patient had three fits very similar to those at the commencement of his illness, but there was no further recurrence. Otherwise recovery was uninterrupted. The return of power in the left arm was slow, but full use of the part was ultimately regained, and when dismissed the man was in all respects well.

A Case of Unilateral Gigantism has been reported by HORNSTEIN (*Virchow's Archiv*, cxxxiii, No. 3, p. 440; *Schmidt's Jahrbücher*, 1894, No. 8, p. 126), in which histologic examination (the first in cases of the kind published) disclosed a condition of hyperplasia of the soft parts, especially the connective tissue, the osseous tissue being similarly affected in slighter degree. The patient was a child, two and a half months old, the daughter of an insane mother, and the cause of whose death was not made clear by the autopsy. Both axilla contained a conglomeration of lymphangiectatic cysts as large as hazel-nuts, and adherent to the skin. The thymus could not be found. The face and trunk were symmetric. The right ear was the thicker, though not longer than the left. The upper and lower extremities on the right side were larger than on the left. Microscopically it was found that the increased size of the right ear was due to thickening of the skin and hyperplasia of the subcutaneous connective tissue. In the right foot there was also hyperplasia of the subcutaneous connective tissue. In the right foot there was also hyperplasia of the fatty and muscular tissues. Tendons, nerves, and vessels were also thicker upon the right side. There was but little increase in the size of the bones. The spinal cord and ganglia presented no abnormality. The peripheral nerves of the right side were thickened by increase in the epineurium and perineurium, and the nerve-bundles presented an increased diameter. On staining with hematoxylin some bundles appeared unduly pale, but on staining by the method of Weigert the medullary sheaths appeared normal. A small number of so-called bladder-cells, such as have been found in cases of cachexia thyreopriva or cretinism, collected in groups, and always cut transversely, were found only on the affected side. The possibility of any connection between the morbid condition and the thyroid gland is emphatically rejected. The muscle-buds of Kölliker were enlarged, and richly developed on the affected but not on the sound side.

An Unusual Mode of Transmission of Syphilis.—SENGER (*Dermatologische Zeitschr.*, 1894, Band i, Heft 5; *Monatssch. f. prakt. Dermatologie*, Band xix, No. 4, p. 211) has reported the case of a man, thirty-five years old, who was infected with syphilis at the age of twenty-eight, presenting a chancre, then enlargement of the inguinal glands, and later mucous patches in the pharynx. He submitted to an energetic course of treatment with mercurial inunctions, but eight weeks afterward patches reappeared in the pharynx, the glands of the neck became enlarged, and a syphilitic palmar psoriasis made its appearance. The man submitted to a second energetic course of treatment with mercurial inunctions, which was followed by a long course of potassium iodid. After this there were no further symptoms of syphilis. Nevertheless, the patient a year later underwent another course of inunctions, and afterward married a healthy girl, who gave birth to three healthy children, without any miscarriages. The woman came under observation subsequently with several typical broad condylomata upon either side of the labia majora, slightly enlarged glands in the groin, and syphilitic psoriatic spots upon the neck. On inquiry it was learned that the husband had several months before observed upon the penis an herpetic ulcer that caused no pain and soon disappeared. It was from this time that the symptoms of the wife dated. There was no evidence that the husband had received a new infection, or that the wife had been exposed to any other source of infection. The explanation offered is that somewhere in the body of the husband—perhaps encapsulated within the prepuce—the syphilitic poison had remained latent, until set free by some unknown or indifferent cause, when it occasioned the vesicle which proved capable of transmitting the infection.

Congenital Absence of the Pectoralis Major and Minor Muscles of one Side.—LITTLEWOOD (*Lancet*, No. 3697, p. 19) has reported the case of a boy, ten years old, who, following a slight injury to the right shoulder, discovered that he had no armpit on the corresponding side. At the front of the chest, on the right side, all the ribs were visible, being subcutaneous and uncovered by muscle. Neither pectoralis major nor minor could be seen or felt. The coracoid process stood out distinctly. A firm membrane was attached to the inner extremity of the first rib and adjacent portion of the clavicle at one end, and to the inner part of the tip of the coracoid process at the other end. It became tense on drawing the arm to the side, and probably represented the costo-coracoid membrane. In this position of the arm there was also to be felt a slight ridge of the skin, like a strand of fascia, about the position of and corresponding to the anterior axillary fold. The other muscles about the scapulo-humeral articulation were much better developed upon the left side, and this was more noticeable in the anterior portion of the deltoid and coraco-brachialis muscles. The nipple was present and well developed. The shoulder-joint was powerful, and all of the movements were well performed. Circumduction was much more free than on the left side.

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SATURDAY, SEPTEMBER 15, 1894.

THE RESPONSIBILITY OF THE INSANE.

THE never-failing topic in medical jurisprudence, of the responsibility of the insane, was made the subject of special discussion in the Section on Psychology of the British Medical Association at its recent meeting. On the principle that misery loves company, we may find some satisfaction in learning that English alienists are as much troubled by antiquated methods of legal procedure as psychologists are in this country. The law, being so largely based on precedent, pursues in some respects a system diametrically opposed to scientific principles. In a general way, we may say that in science the most recent authoritative utterance is assumed to be the most trustworthy, but in law the antiquity of a maxim is a point in its favor.

In 1843 a formal declaration was made by English judges as to the rule upon which the plea of insanity is to be accepted as a defense for homicide, and this still stands, though some judges, appreciating the advances in science, have widened the application so that it is less oppressive. Nevertheless, when it is considered that the rule was laid down fifty years ago—even then, doubtless, not representing fully the medical knowledge of the time—and that in the period that has elapsed greater progress in criminology has been made than in the two centuries preceding, we can realize how great is the discordance between the practice of courts and the views of experts.

Though judges and juries, both in this country and in England, occasionally take a scientific view of the responsibility of the insane murderer, the usual practice is to look upon the plea of insanity as a mere expedient of the defence. The sentiment of the community is largely in the same direction, and is of course likely to influence juries, and not be entirely without influence upon judges and prosecuting officers. There are several reasons for this tendency in public opinion. Every large community presents almost every grade of mind, from the most exact to that which is the subject of the wildest vagaries. It is often difficult, and sometimes impossible, to determine when reason ceases and insanity begins. The whole question is most abstruse, and hence, as in all abstruse questions, ignorant persons do not hesitate to form and hold opinions. That the readiness of some professional experts to exhibit a partisan interest on the side for which they are called has materially discredited expert testimony is well known. Prosecuting attorneys, judges, and the community at large, are wont to regard the statements of medical witnesses for the defence as dictated by fees rather than by belief.

Another circumstance that prevents calm consideration of the evidence of irresponsible insanity is that murders committed by such irresponsibles are often atrocious, and the feelings of the community are highly wrought. The horrors of the murder are detailed with great vividness by the daily newspapers, and prosecuting attorneys are held responsible for the swift expiation of the crime.

The delusional insane are so erratic and impulsive that persons having no relation to the delusions may be murdered in a sudden burst of passion over a trifling dispute. In a well-known Philadelphia case a tradesman was killed during a disagreement as to the merits of an article that had just been sold. On the trial it was shown that the prisoner had for years exhibited the typical conditions of delusional insanity, yet the trial-judge would not allow the question of the man's mental condition to be decided apart from the trial proper. The prosecuting attorney pressed for and obtained a verdict of murder in the first degree, offering no expert testimony to combat that produced by the defence. Nevertheless, the error of the verdict is doubtless admitted, for several years have elapsed since the trial, and the

death-warrant is not yet signed. In a similar case in Washington, however, the judge charged the jury in accordance with the views of the experts, a verdict of not guilty was rendered and the prisoner was sent to an asylum.

It will be seen from these cases that the absence of sound scientific basis for the present attitude of the law gives rise to uncertainty of judgment, and leaves the fate of a murderer almost to chance. This defect is fully brought out in the British discussion, and cases are noted parallel to those just cited. In the Philadelphia case, the policeman who arrested the murderer and the magistrate who committed him were allowed to testify that they did not consider him insane, and English jurisprudence parallels this in the remark of LORD WESTBURY "that any ordinary man is as good a judge of insanity as anyone else."

In considering this topic we must carefully distinguish between the abstract question of moral responsibility and the concrete one of actual disposal of a particular case. Alienists are not contending for the release of the criminal insane; they are simply contending for a clear judgment of each case upon scientific principles. If it be the will of a community that anyone who is known to have deliberately killed another shall die, so let it be; but such is not the will of any civilized community. All recognize conditions of irresponsibility that render punishment out of the question, and it is the purpose of the law, assisted by science, to ascertain the existence of such mental conditions in any given case. The medical man who honestly advocates a particular opinion (and with the mere fee-taker we have no concern) arrives at his views as he would at any other diagnosis, by a consideration of the phenomena of the case. He decides that a prisoner is insane, as he would decide that he had typhoid fever or pulmonary tuberculosis. With the effect of that decision on the subsequent course of the law the expert has nothing to do. It is obvious that an irresponsible murderous lunatic ought not to be at large, but the necessary commitment to an asylum is to be provided for by act of legislature and enforced by the court.

The discussion before the British Medical Association seems to have been limited to papers prepared for the occasion. DR. MERCIER recommended that the law should be altered so as to allow a verdict of "guilty, but insane." SIR FREDERICK BATEMAN discussed the topic of "Criminal Anthropology," and expressed doubts as to the soundness of the position of the Italian school. The Section resolved to solicit Parliamentary action. The tendency of American lawyers to follow English precedent will render it likely that if advanced methods of determining and affirming the insanity of criminals be attained in England it will not be long before the reform will influence American jurisprudence.

A peculiar feature is exhibited in the report of the meeting as published in the *British Medical Journal*. We give it *verbatim*:

"The ruling of MR. JUSTICE CAVE in the case of BROCKLEHURST was even more emphatically contradictory of the literal interpretations of other judges. When counsel for the prosecution was about to address the jury on the subject of the prisoner's insanity the judge interposed with the remark that the doctor had said distinctly that the prisoner was of unsound mind. Counsel suggested that the question for the jury was whether the prisoner was capable of appreciating the difference between right and wrong. The judge said, 'No; the question is whether he was insane at the time—(laughter)—and if a man is suffering from the delusion that his wife tries to poison him and is unfaithful to him, and attacks her in consequence, it is as clear as anything can be that the man is mad.' Turning to the jury he said, 'Do you feel any difficulty about it, gentlemen?' 'Not the slightest,' said the foreman. (Loud laughter.)"

It is often said by sarcastic Americans that the sense of humor must be highly developed in our British cousins to permit them to extract amusement from the pages of their comic weeklies. It is not quite clear from the report whether the laughter was in the court or at the meeting, but it must require a high sense of humor to perceive anything laughter-provoking about the incident, either in its occurrence or in its relation.

REVIEWS.

A TREATISE ON APPENDICITIS. By GEO. R. FOWLER, M.D., Examiner in Surgery, Medical Examining Board of the Regents of the University of the State of New York; Surgeon to St. Mary's Hospital and to the Methodist Episcopal Hospital; Consulting Surgeon to the Relief Hospital and to the Norwegian Hospital, Brooklyn. 8vo, pp. 190, with 35 woodcuts and 4 plates. Philadelphia: J. B. Lippincott Co., 1894.

IN this book we have a revised reprint of the widely commended series of articles by Dr. Fowler, which appeared in the *Annals of Surgery* last spring. The work is systematic, scientific, and complete in so far as the very latest knowledge of the subject can make it. An unusual practical experience with appendicitis, together with a just appreciation of the work of others and a familiarity with the literature has enabled the author to present a most satisfactory and valuable monograph

which can without reserve be heartily commended. A wide circulation of the volume must certainly lead to earlier diagnosis of this terrible disease, and to a much lessened death-rate if the details of treatment set forth are adhered to.

Full chapters are devoted to anatomy, clinical history, etiology, bacteriology, pathologic anatomy (written by Dr. Van Cott), diagnosis, and treatment. In all of these will be found many original observations and ideas, as well as numbers of hitherto but little known or little appreciated facts. The chapters devoted to bacteriology and pathologic anatomy are of especial note and interest, and demonstrate how quickly the innumerable workers in these fields now work out conclusions. The illustrations are numerous and well executed, while typographically the work is of high grade.

MATERIA MEDICA, PHARMACY, PHARMACOLOGY, AND THERAPEUTICS. By W. HALE WHITE, M.D., F.R.C.P. Professor and Lecturer on Materia Medica and Therapeutics, etc. Edited by REYNOLD W. WILCOX, M.A., LL.D., Professor of Clinical Medicine and Therapeutics at the New York Post-Graduate Medical School and Hospital, etc. Second American Edition revised. 8vo, pp. 661. Philadelphia: P. Blakiston, Son & Co., 1894.

BOTH author and editor of this book have done their work so well that it seems ungracious to inquire whether the work was worth doing. Yet we doubt very much if the very brief discussions of the physiologic action and therapeutic effects and uses of many of the drugs mentioned in this book will be of service either to student or physician, unless he has at the same time access to a larger work, such as Brunton's or Bartholow's; for therapeutics is not a subject that readily lends itself to condensation. Unless one is satisfied with the merest empiricism, no concise manual of therapeutics can, therefore, stand by itself as a safe guide to the choice of remedies. As a note-book to refresh the memory of the student and as a quick reference-book for the experienced physician, who merely wishes a concise statement of some certain point, the book is admirable. Evidently no pains have been spared to make it accurate, and its arrangement is scientific. It is the best book of its class now in the market, and it has been made so in no slight degree by the additions and emendations of the American editor.

VITAL STATISTICS OF NEW YORK CITY AND BROOKLYN. Covering a Period of Six Years ending May 31, 1890. By JOHN S. BILLINGS, M.D., Surgeon United States Army, Expert Special Agent. Quarto; pp. 529 and maps. Washington, D. C.: Government Printing-Office, 1894.

THIS is a handsome volume, containing tables and illustrations prepared under the direction of Mr. William A. King from data furnished by Mr. D. L. N. Peixotto and others. The data are grouped in two periods, the six-year period and the census-year period, each ending May 31, 1890. The maps are most instructive and show two principal points. The first is that the death-rate, without regard to the class of inhabitants, is greater in both cities over made land and reclaimed swamps and bays than elsewhere; and second, the death-rate is highest in the most crowded tenement-districts. Perhaps the general reader will be interested to note the fact that the death-rate among the children of Irish mothers is highest, and it is lowest for the children of mothers born in Russia and Poland. The statistics are given in extreme detail and furnish material for a study too extended for the space at our disposal. This is one of the most valuable statistical works published during the past year, and should be studied in connection with the report of the Bureau of Labor in relation to the slums of great cities. It should also be studied in connection with the condition of the labor-market during the six years which it covers.

GUY'S HOSPITAL REPORTS. Edited by W. A. WHITE, M.D., and W. H. A. JACOBSON, M.A., M.Ch. Vol. L, being Vol. XXXV of the third series. London: 1894.

IN addition to the many admirable monographs and reports contained in this volume, there is an index from Vol. I, 1836, to Vol. L, 1893, which will be very much appreciated by authors and students. A study of five cases of pernicious anemia with determinations of the iron in the viscera, and some observations on the urine are contributed by F. Gowland Hopkins, Gull Research Student. The liver and spleen in all cases contained an excess of iron, though the amount varied widely in the different cases. The urine was highly acid, nearly always dark in color, and the absorption-band at F could almost always be observed spectroscopically, even when the color was less marked than usual. The specific gravity varied between 1010 and 1012, and uric acid crystals were frequently deposited, even when the percentage of uric acid was normal. The pigments were normal urobilin and hematoporphyrin.

The report of one hundred and forty cases of pyrexia by Dr. J. H. Bryant is an extremely valuable research, and the same may be said of Perry and Shaw's paper on "Diseases of the Duodenum." Hale White contributes a clinical study on the effect of giving levulose and inulin to patients suffering from diabetes mellitus, confirming what has heretofore been published on this topic.

CORRESPONDENCE.

HYDROPHOBIA—STATISTICS DESIRED.

To the Editor of THE MEDICAL NEWS,

SIR: Will you permit me through your columns to ask that my professional brethren will communicate to me the occurrence of cases of so-called hydrophobia in their practice for the year 1894, from January 1st, and so on until the end of this year?

I would like in all cases to learn: 1. The sex and age of patient; *a*, the kind of animal that is credited with the inoculation; *b*, its state of health; *c*, the provocation to bite (if any existed). 3. The reasons why the animal was (if it was) deemed rabid. 3. The seat of the bite (or other mode of inoculation). 4. The fact and method of cauterization (if any). 5. The time between the inoculation and the outbreak. 6. The symptoms of the

outbreak—the occurrence of mania or imitation of dog actions. 7. The remedies used, and doses, with their seeming effect. 8. The issue of the case, and when death occurred. 9. The investigations made to exclude the presence of disease other than so-called hydrophobia. 10. The findings on autopsy—if one was held.

I shall, of course, acknowledge in future publications aid received in continuing my studies in regard to this subject. Yours respectfully,

Charles W. Dulles.

4101 Walnut Street, Philadelphia.

NEWS ITEMS.

Death of Helmholtz.—The distinguished physicist Professor Hermann von Helmholtz, of Berlin, died on September 8th, at the age of seventy-three. Professor Helmholtz was born August 31, 1821, at Potsdam, and received the degree of M.D. in 1842. In 1847 he read the epoch-making paper on "The Conservation of Force," before the Physical Society of Berlin, at which time he was not aware that Mayer, in 1842, had first advocated essentially the same truth. In 1849 he was appointed Extraordinary Professor of Physiology at Königsberg, and in 1855 he became Professor of Physiology at Bonn, and in 1858 he was called to Heidelberg. In 1871 he was made Professor of Physics in the University of Berlin. In 1891 he was made President and Director of the Physikalisch-Technische Reichsanstalt. The scientific work of this great man was, much of it, connected with medicine, so that physicians are well aware how great is the debt we owe him. Ophthalmologists especially can never forget the inventor of the ophthalmoscope and the writer of the *Manual of Physiological Optics*. There is no department of medical science that, directly or indirectly, was not enriched by the long life of noble labor of this brilliant and masterly mind.

A New Surgical Work.—*A System of Surgery*, edited by Frederic S. Dennis, M.D., and John S. Billings, M.D., is announced by Lea Brothers & Co. as shortly to appear, in three imperial octavo volumes. The list of contributors embraces such names as W. T. Bull, Charles McBurney, and Robert F. Weir, of New York; Councilman, Porter, Richardson, and Warren, of Harvard; Carmalt, of Yale; Keen, White, Roberts, and Wharton, of Philadelphia; Welch, of Baltimore; Park, of Buffalo; Conner, of Cincinnati; Mudd, of St. Louis; and Senn, of Chicago.

Prof. Rollett, of Lyons, Professor of Hygiene, and a well-known syphilographer, died August 2d, at the age sixty-nine years. He contributed freely to the literature of venereal diseases.

A. B. Miles, Professor of Surgery in Tulane University, New Orleans, died August 5th, at the age of forty-one years.

A Statue to Claude Bernard will be unveiled at Lyons on October 26th.

Books and Pamphlets Received.

Manhattan Eye and Ear Hospital Reports. No. 1. New York, 1894.

The Southern Surgical and Gynecological Association: Its Origin, Objects, and Aims. The Annual Address of the President. By Bedford Brown, M.D. Reprinted from the Transactions, 1893.

De l'Extraction des Osselets dans l'Otorrhée. Dr. E. J. Moure. Paris-Bordeaux: O. Doin et Ferret et Fils, Editeurs, 1894.

A Manual of Nursing in Pelvic Surgery. By Lewis S. McMurtry, A.M., M.D. Louisville: John P. Morton & Co, 1894.

The Truth About Homeopathy. By Dr. Wm. H. Holcombe. A Posthumous Manuscript. Also a Sketch of the Life of Dr. Holcombe. Philadelphia: Boericke & Tafel, 1894.

Salines in Appendicitis. By S. C. Gordon, M.D. Reprinted from the Boston Medical and Surgical Journal, 1893.

Recurrent Appendicitis. Six Operations with Six Recoveries. Treatment for Acute Attack in Five Cases. By S. C. Gordon, M.D. Reprinted from the Boston Medical and Surgical Journal, 1893.

Report on Tuberculosis in Ontario. Presented to the Provincial Board of Health, and Adopted with Recommendations therein Contained. By P. H. Bryce, A.M., M.D., Secretary. Toronto: Warwick Bros. & Rutter, Printers, 1894.

Ueber die antiseptische Kraft des Ichthyols. Von Dr. Rudolf Abel. Abdruck aus dem Centralblatt für Bakteriologie und Parasitenkunde, 1893.

L'Ictiolo nella Cura della Blennorragia. Per il Dott. Pio Colombini. Siena: Tip. Edit. S. Bernardino, 1893.

The Insurance Directory, Reference, and Year-book. London: T. J. W. Buckley, 1894.

Transactions of the Medical Association of the State of Alabama. The State Board of Health. Montgomery: Brown Printing Co., 1892.

Hospitals, Dispensaries, and Nursing. Papers and Discussions in the International Congress of Charities, Correction, and Philanthropy, Section III, Chicago, June 12 to 17, 1893. Edited by John S. Billings, M.D., and Henry M. Hurd, M.D. Baltimore: The Johns Hopkins Press. London: The Scientific Press, Limited, 1894.

Therapeutic Reflections. A Plea for Physiological Remedies. By Simon Baruch, M.D. Reprinted from the Journal of Balneology, 1893.

The Operative Treatment of Complete Prolapsus Uteri et Vaginæ. By George M. Edebohls, A.M., M.D. Reprinted from the American Journal of Obstetrics, 1893.

Treatment for Depressions in the Skull of the Newborn. By David J. Jennings, M.D. Reprinted from the Surgical Record, 1894.

An Act to Regulate the Practice of Medicine and to Create a State Board of Examiners in Louisiana. Monroe: Telegraph-Bulletin Print, 1894.

The Treatment of Internal Squint. By Howard F. Hansell, M.D. Reprinted from the Annals of Ophthalmology and Otology, 1894.

Indirect Massage of the Lens for the Artificial Ripening of Cataract. By Edward Jackson, A.M., M.D. Reprinted from the New York Medical Journal, 1893.

The Relief of Pain in the Eyes. By Edward Jackson, A.M., M.D. Reprinted from the Therapeutic Gazette, 1893

Achievements of Sanitation Measured by Vital Statistics. By George E. Willits. Reprinted from the Proceedings of the Sanitary Convention held at Hillsdale, Mich., July, 1893, and published as a Supplement to the Annual Report of the Michigan State Board of Health for the Year 1893.

A Manual of Therapeutics. By A. A. Stevens, A.M., M.D. Philadelphia: W. B. Saunders, 1894.

Twelfth Annual Report of the Children's Aid Society of Pennsylvania, 1893.

In Memoriam: John M. Keating, M.D. By Judson Daland, M.D. Reprinted from International Clinics, 1894.

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ORIGINAL ARTICLES.

THE RATIO THAT ALIMENTATION SHOULD BEAR TO OXYGENATION IN DISEASE OF THE LUNGS.[1]

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WITHIN the past two decades much has been heard of super-alimentation and forced feeding in pulmonary tuberculosis. It seems to have been assumed in many quarters that the more food a tuberculous patient can be made to take, the better his chances of recovery. Recent studies and observations have, however, led me to consider seriously whether it is not just as true in diseases of the lungs as it admittedly is in other diseases, that excess of food beyond the amount that can be perfectly digested and assimilated is injurious. It seems even probable that in pulmonary affections the gaseous products of indigestion and imperfect oxidation, being partly excreted by the lungs, may be more deleterious than in other cases.

The title of this paper assumes that there exists a definite ratio between the amount of oxygen that a pulmonary patient takes in and the amount of food that he is capable of digesting and assimilating. When the intake of oxygen is large, as occurs in the case of robust persons who are exercising actively in the open air, it is manifest that a maximum amount of food will be demanded and can be safely given. When, on the other hand, a patient has one or even both lungs crippled by disease, leaving him, as often happens, only one-half or one-third his normal breathing-power, and is moreover entirely at rest, being confined to bed in a close, ill-ventilated room, his consumption of oxygen is relatively very small, and the amount of food that he can digest and thoroughly oxidize into a nutritive pabulum for the uses of the economy is very much less.

Between these two extremes are found patients with all possible degrees of capacity and opportunity for absorbing oxygen, and, in consequence, with equally varying degrees of capacity for digesting and assimilating food. If the bedridden patient with only one lung be compelled to ingest even one-half as much food as is imperatively required by the robust outdoor laborer, mischief must result from the surplus that cannot be oxidized into assimilable forms, even if it were possible for it to be digested. Evidently, then, there is such a ratio as has been assumed, and it is exceedingly important that this fact be borne in mind in deciding as to the proper feeding of any case of pulmonary disease.

My attention has of late been particularly directed toward the study of diet and digestion, and, meeting often with such surprisingly good results from carefully-selected and occasionally even severely-restricted diet in numerous forms of disease, it occurred to me last winter to ascertain what a more careful diet, in connection with a larger allowance of oxygen in the form of pure air, could do for my tuberculous patients. About the time when this resolve was made there came into my hands several new cases of pulmonary tuberculosis, including one in which, on account of the extreme irritability of the stomach, full feeding was out of the question. Following will be found a report of it:

CASE I.—The driver of an express-wagon, thirty years old, was first seen by me January 19, 1894. He had always been strong until some time in August, 1893, when he began to cough severely and to have shortness of breath. He first noticed that he had fever about the first of October, and took to his bed early in November on account of fever and debility. He had previously vomited a good deal, often as much as five times a day. He had remained in bed from the time mentioned till he came under my care. While in bed he had been vomiting several times daily, and particularly after almost every meal. His previous medical attendant was said to have urged very liberal feeding—that the patient be made to take as much as he possibly could. I found the man with a temperature ranging from 101° to 102° in the afternoons and with a pulse usually much above 100. When he had last been able to get out, nearly two months before, he had weighed 112 pounds. I should have estimated his weight at somewhat less at the time of my first visit—probably about 105 pounds. He was then expectorating an abundance of the usual nummular sputum of pulmonary tuberculosis in the second stage, and said that he had been doing so for several weeks. He was having copious night-sweats, and his nights were further disturbed by a frequent harassing cough.

Examination disclosed dulness on percussion at the right apex anteriorly, and a similar condition somewhat less marked posteriorly; increased vocal fremitus and subcrepitant râles over the same regions, with some gurgling râles and cavernous breathing

[1] Read before the American Climatological Association, in the Congress of Physicians and Surgeons, Washington, D. C., May 29, 1894.

at a point in front a short distance below the clavicle. At the left apex anteriorly there were the usual signs of a slight infiltration.

The man lay in bed, heavily covered, in a close, warm room of very small dimensions and without any ventilation except such as was afforded by a door opening upon a staircase which led to the living-rooms below. The directions now given were that the windows in the room should be opened to the fullest extent possible and kept so constantly during the day, except in very bad weather, and that they should be open at least six inches at night; the patient meanwhile to be covered just sufficiently to be comfortable. To prevent his "taking cold" and to improve his nervous tone, he was to be sponged at first with cool and later on with cold water, every morning. He was allowed small portions of the blandest liquid diet at intervals of two hours, and tablets containing one-tenth of a drop of creosote were administered, one every two hours, to stop the vomiting and improve digestion.

The vomiting ceased at once, and never recurred except once some ten days later as a result of imprudent eating in violation of express rules. After the stomach had regained its tone and the appetite had become voracious, as it did without other medicine, from the effects of the spongings and freer ventilation, I was obliged to impose stringent restrictions to prevent over-eating.

The man was allowed a plain breakfast of beefsteak or chops and bread and butter, preceded an hour before by a glass of hot water in which was dissolved a little table-salt. In the middle of the day he was directed to take, instead of his accustomed hearty dinner, merely a light lunch of crackers or stale bread and butter, with a baked apple or other fresh fruit, such as grapes or oranges. His supper was much the same as his breakfast, except that either roast or broiled meat or fowl was permitted, with one or two vegetables, but no desserts except fresh fruits. Milk was also permitted.

Pari passu with the gain in gastric tone there was an improvement in the cough, fever, and most of the other symptoms. By the end of two weeks the temperature had ceased to rise above 99.5° in the afternoon; the night-sweats had nearly disappeared and there was no longer any sputum, though still a dry cough. The physical signs showed corresponding improvement. The pulse continued to be weak and rather rapid, and attempts to strengthen it by administering a glycerite of the hypophosphites (Churchill's formula) disturbed his digestion somewhat, and so was abandoned. Minute doses of arsenic iodid were then given with good effect, and at times small doses of creosote were again administered. From the beginning the chest was painted over the affected areas with tincture of iodin every day till the skin became sore; then it was left a few days until new skin formed, when the painting was resumed, and so on.

The man continued to improve in all ways until, at the end of a month from the time the treatment began, he was able to drive out every pleasant day, and was required to sit out or lie on a cot in the front of his house in all weathers except the roughest. Fortunately the winters in Atlantic City are usually very open and mild, the past winter having been exceptionally so, and therefore this patient enjoyed a continual out-door air-bath from morning until night almost every day. By this time his weight had increased to 126 pounds, and there was no longer any elevation of temperature, except that it occasionally reached 99° at night.

On February 27 the patient began to suffer from a relapse, which I attributed to a lapse on his part from the stringent dietetic rules that had been imposed on him. He had gone back to his former habit of eating a heavy mid-day dinner, in addition to two other hearty meals. *Post hoc*, whether *propter hoc* or not, he began to cough and raise sputum, and for several days his temperature again rose above 100° in the late afternoon, while physical examination revealed moist râles below the right apex. A return to his former strict diet was followed by a prompt improvement again, which progressed thereafter uninterruptedly.

By May 2 the patient had recovered his former appearance of robust health, and weighed 132 pounds. He has been at work since early in April. On the date mentioned he was presented at a meeting of the Atlantic County Medical Society, and examined by a number of members. At this time there was still some dulness below the right apex, with a rather harsh respiratory murmur, but no râles whatever. He reported that he had not coughed at all for three or four weeks and that he felt as well as he had ever done.

The foregoing case has seemed sufficiently important to be reported in detail, on account of the very prompt and striking effects that resulted from giving the man more air and less food than he had been receiving before. The report also embodies substantially the method of treatment, both hygienic and medicinal, that has been followed in numerous other cases of pulmonary disease which have been under my care during the past winter and spring. Reports of these are here appended:

Case II.—A widow, forty years old, a resident of Philadelphia, and sojourning in Atlantic City for her health, was said to have had peritonitis in March, 1893, and since then to have taken morphin—her dose, when she came under my care, having been about one grain daily, hypodermatically, with a proportionate amount of atropin. She had been coughing more or less for upward of a year, and badly for about a month, after an acute attack in Philadelphia of what was considered to be congestion of the lungs threatening pneumonia. She was very thin and emaciated and exceedingly nervous. She was supposed to have had at one time spinal meningitis—probably aggravated spinal irritation. Her temperature at the time of my first visit, December 27, 1893, was 99.6° at 11.00 A.M., and subsequently ranged from 100° to 102° in the late afternoon. She had sweats at night, until they were controlled by a pill of agaricin, gr. $\frac{1}{12}$, with Dover's powder, gr. 1, one or two of which were given at

bedtime. She coughed hard, especially at night, raising a moderate amount of characteristic tuberculous sputum, and occasionally vomited after eating, though with nothing like the frequency in Case I. Examination disclosed the usual signs of a small area of consolidation at the left apex, with a larger area at the right, which had begun to soften. The treatment adopted was similar in the main to that described in Case I. Morphin was gradually withdrawn, codein with nerve-tonics being substituted, and later the codein itself was withdrawn. Similar rules of diet were made as in the previous case, but could not be carried out so strictly, as the patient lived in a boarding-house in which dinner was served in the middle of the day, and the *menu* at supper afforded a scanty variety. Sweets were forbidden and moderation enjoined as to starchy articles. The net result was that the patient took considerably less food than before, and in consequence digested it much more perfectly. She had a fairly good stomach after she began to improve, and creosote was given her in doses of from one to three drops after eating.

On January 5 there was a slight hemoptysis which was promptly controlled. By January 20 my notes show that her temperature no longer rose above 99.5° in the afternoon, and the cough had ceased entirely, not having troubled her at all for the week previous. All narcotics were now discontinued.

On January 27 there was a return of fever, the temperature rising to 101°, but without any return of the cough or expectoration. The patient had been disregarding her rules of diet and indulging in some indigestible food. Within a few days, the patient meanwhile having been kept in a recumbent position, the fever disappeared and the temperature for sometime afterward did not rise above 99°.

In this case the early and apparently entire cessation of the cough was very noteworthy, but the dulness on percussion remained, with some harshness of the respiratory murmur. Some slight moist sounds persisted long after the patient insisted that she no longer coughed or raised anything, but by the end of two months dulness and some increased vocal fremitus were the only noticeable signs over the affected areas. She had gained five pounds in weight and was less nervous.

The patient left Atlantic City for the interior of Pennsylvania on May 1, and during four or five days preceding that date she had complained of a slight cough for the first time in three months, and had occasionally raised a little sputum in the morning. The temperature remained normal, but a few faint râles were found to have reappeared at the right apex. On May 18 a letter was received from her stating that she had developed whooping-cough of a severe type, and with this was again having fever and night-sweats, so that a serious relapse of the tuberculous trouble has evidently taken place as a result probably of the pertussis, which possibly caused the slight return of cough in the last days of April.

Case III.—A lady, twenty-five years old, a member of a family in which there has been much tuberculosis, had always been accustomed to plain living, but last summer gave up housekeeping and boarded in a house in which the table was rather luxurious. Her digestion became somewhat impaired, and about midsummer she began complaining of a stubborn dry cough. The usual remedies had no effect, and in December last I found slight but well-marked infiltration at both apices. Her diet was restricted, though less than in the preceding two cases, as her habits were active, and the same regimen was enjoined. The cold sponge-baths and constant counter-irritation by means of iodin were particularly insisted on, and the patient, having been somewhat of a bicyclist in former years, was urged to resume that form of exercise, and keep out of doors on her wheel as much of the time as possible. She was directed to take continually creosote in doses of from one to three drops on sugar after each meal. She shortly after began to show improvement, and with but few interruptions progressed favorably until this writing, May 18. She now weighs six pounds more than at the time of beginning treatment, and no longer coughs. Her temperature, which was rising pretty regularly to 99.5°, and sometimes to 100° in the latter part of the day, has for some time not gone above normal. The physical signs indicate an arrest of the disease at both apices.

Case IV.—A widow, twenty-nine years old, whose husband died two years ago of pulmonary tuberculosis complicated with alcoholic gastritis, had always had good digestion, and has been fond of sweets, including candies, and not over-digestible lunches beween meals. She had had a hacking cough since the time of her husband's death, and was greatly emaciated, her weight ranging between eighty and ninety pounds. A year ago, after an attack of influenza, she began to expectorate. She came under my care in February last, and I then found a small consolidated portion of lung below the right apex, as plainly shown by signs recognizable both in front and behind. There were also numerous subcrepitant râles in the same region. She had been seen by Dr. R. G. Curtin, in Philadelphia, some months before, and he had prescribed guaiacol. Her former medical attendant had continued this drug, giving no other medicine. I also directed that the guaiacol be continued in doses of from two to three drops after meals, and placed her at the same time upon a somewhat restricted diet, forbidding especially all lunches between the three regular meals, except that milk was allowed at bedtime, and cutting off rigidly all indigestible dishes.

Constant counter-irritation over the affected spot was ordered, and the patient was strictly enjoined to spend a large part of every day out of doors, except in the worst weather, and to have ample ventilation of her room at night. The clinical thermometer, the regular use of which I always insist upon in all cases of suspected tuberculosis, disclosed

slight rises of temperature for some time after the patient came under my care, never, however, going above 100°, and within a few weeks after the institution of the hygienic measures just described it ceased to rise above 99°. The expectoration also gradually diminished. At the time of my last examination, May 14, there was still dulness at the right apex, both in front and behind, with slightly increased vocal fremitus and wavy respiration, but no râles of any kind, and the patient reported that she had neither coughed nor expectorated for three or four weeks. Her weight had increased to ninety-two pounds, which is above her average for the past six years.

I consider the disease arrested in this case, but the patient is continuing the guaiacol with the still more important hygienic precautions. She now eats all that her appetite demands at the three meals, but takes no lunches except the milk at bedtime.

Case V.—A shopkeeper, sixty-two years old, of very broad chest and robust build, weighed 220 pounds shortly before he became ill. I was called to see him on January 18, 1894, on account of a moderate hemoptysis. He had been coughing somewhat for six months or more. A small area of dulness was found a few inches below the right apex, anteriorly, and there was feeble respiration over the same region. The bleeding yielded rather slowly to treatment, and was followed by a rise in the temperature, which reached 101° at night, falling to the normal again in the morning. There began to be raised a considerable amount of sputum, which continued to be blood-streaked for a week or more. The cough became very severe, especially at night. The patient had also long suffered from intestinal indigestion, with flatulence and constipation. He was ordered a plain but substantial meal, mainly of meat, eggs, or milk, morning and night, with a light lunch in the middle of the day; also a full pint of hot water an hour before each meal, with a view to overcoming his constipation and lessening his obesity. His chest was sponged with cold water every day, and the skin over the affected region was kept sore with iodin. Creosote was given in small doses after each meal, and on account of the unusually severe character of the cough, which prevented sleep and threatened further hemorrhage, an anodyne mixture had to be administered at night. A slight recurrence of hemoptysis at the end of a week complicated matters, but after this marked improvement set in. The temperature speedily fell to normal, cough and expectoration steadily lessened, and, what most delighted the patient, his constipation and intestinal flatulence were overcome, while his protuberant abdomen sensibly retracted. For nearly a month this improvement continued, and the patient seemed to be getting well, when he contracted a severe "cold" by standing on a street-corner engaged in conversation, after a long walk, on a cold day in March, and the congestion thus set up resulted in another hemorrhage.

From this time on hemorrhages recurred every week or two, in spite of a plentiful use of the best astringents. The infiltration finally involved the greater part of the right lung and invaded also the apex of the left. A cavity has formed in the center of the right lung, and the case is likely now to follow the usual course. After the hemorrhage began to recur with such alarming frequency the hygienic method was virtually abandoned; efforts were made to restrain the violence of the cough at all hazards, and anodyne cough-medicines had to be resorted to freely, regardless of the effect on digestion. Moreover, the family had an invincible dread of fresh air, so that all attempts to carry out the plan of securing a freer oxygenation of the blood were nullified.

Case VI.—A physician, thirty-six years old, had infiltration below the apex of the right lung when a medical student in Philadelphia in 1879, according to the diagnosis of Prof. J. M. Da Costa. He had fever and cough during most of the following winter, and had to abandon his studies for some time. The disease was later controlled, and he regained good health. In October, 1893, having meanwhile moved to Atlantic City, he again developed cough, with a return of the signs of consolidation of the right lung. His temperature was a little above normal nearly every afternoon until about the 1st of January, 1894, and occasionally, though rarely, reached 101°. He treated himself for the most part, but occasionally consulted me during the months of December and January. He has always had a perfect digestion and made no change in his usual full diet—three regular meals daily, with dinner at night—except that a generous allowance of milk was now substituted in part for other less nourishing foods. He continued in full practice and was riding out of doors in an open buggy during the greater part of every day, and much of the time during the evening. Vigorous counter-irritation was kept up over the affected spot, and creosote was taken to the extent of about fifteen drops daily.

Various tonics, including cod-liver oil, arsenic, and strychnin, were taken at different times. In short, the treatment was counter-irritant, antiseptic, and roborant to the fullest extent, and, what was doubtless most important of all, oxygenation was maintained at the maximum point possible without over-fatigue, by almost continual driving out of doors in a pure air. By the middle of December the signs, as well as the symptoms, indicated a rapid arrest of the disease. The patient's weight at the beginning of the attack had fallen to 158 pounds; it is now 186 pounds. Some dulness persists over the area formerly affected, but otherwise the patient is well. He has had no expectoration and no cough whatever for nearly three months.

In Case V a specimen of the sputum obtained at an early stage of the disease, when the cough and expectoration had almost ceased, was examined microscopically by Dr. D. Braden Kyle, of Philadelphia, and a few bacilli found. No examination of the sputum was made in the other cases, as the physical signs and symptoms were decisive and left

no room for doubt as to the character of the malady in any of them.

The foregoing do not represent selected cases, but include all the cases of undoubted pulmonary tuberculosis that have been under my care for any considerable time during the past winter and spring. One serious case in the third stage which was sent by Dr. Ralph Walsh, of Washington, D. C., remained about two weeks only, as, though some little improvement occurred in appetite and digestion from the change of climate, I was unable to promise any lasting gain from a longer sojourn. A number of others in the early stages, in the persons of transient visitors, were seen a few times, most of them at my office, and, as a rule, there was more or less amelioration of the symptoms, but none of these were under methodical treatment.

The results in the six cases here described were, on the average, considerably better than I have been accustomed to see in former years, when it was not my practice to impose any restrictions upon the diet of tuberculous patients, but rather to encourage the fullest feeding possible. Neither in my experience in Atlantic City during many years previously to the past winter, nor in Thomasville, Ga., during the winter of 1892–93, where I saw a large number of cases of tuberculosis in all stages, were the fever, cough, general nutrition and body-weight found so generally to improve under any of the methods of treatment then employed. These later results have been obtained in four out of the six cases, with the aid of so little internal medicine, and that little addressed almost entirely to the digestive tract, that the conclusion seems irresistible that the management of the diet and hygienic regimen generally should receive the chief credit. The other two cases, V and VI, are the exceptions that prove the rule. Case V had a rather poor digestion and the anodyne and astringent mixtures apparently necessitated by his cough and recurring hemorrhages exerted, without doubt, an injurious influence upon his digestive organs.

Case VI had a stomach that could digest anything, and, therefore, this patient could bear and progress favorably under a more active medication than most others.

It is doubtful whether any drugs yet discovered have a directly curative effect on tuberculous lesions, though there may be a few, including some of the preparations of the hypophosphites, that, by stimulating the circulation of blood in the lungs, aid in improving the nutrition of the diseased tissues. It is probable that the majority of drugs, as well as those changes of climate that seem to exert a favorable influence in pulmonary cases, effect their good results for the most part indirectly by increasing appetite, improving digestion, and stimulating the vital processes generally, thus increasing the quantity and bettering the quality of the blood that reaches the diseased structures. Indeed, we are justified now in believing that an abundance of pure healthy blood, circulating normally in the lungs, is the most essential prerequisite to a cure of pulmonary tuberculosis. Hence the paramount importance of looking closely to the blood-making processes by securing as perfect digestion as possible, together with a complete oxidation of its products, so as to spare the lungs from the injurious task of assisting in the excretion of the poisonous compounds resulting from suboxidation and decomposition. To attain these ends satisfactorily, the total amount of aliment ingested must not be in excess relatively to the amount of oxygen absorbed.

We may, therefore, safely insist upon liberal feeding whenever the patient can exercise freely out of doors in any clean aseptic air.

When, on account of fever, rest of the body is temporarily necessary, a fairly good supply of oxygen is still obtainable by causing the patient to lie on a bed or hammock out in the open air. When this is not practicable, we should have the windows of his bedroom kept widely open, resorting to extra bed-covering if required. In this way, a much larger amount of food can be taken with safety and advantage than when the patient is kept confined in an overheated room.

While insisting that the patient shall be kept out of doors as nearly constantly as possible, and, at all events, shall always, night and day, have an abundance of fresh air to breathe, whether within doors or without, it may be noticed that I have hitherto said little about the relative value of different airs or climates for cases of the disease under consideration. The reason is that I consider the importance of selecting a special climate for such cases greatly overestimated. Certain climates are doubtless somewhat more suitable than others for diseases of the lungs, but the difference is much less than is commonly supposed. The germ-laden air of crowded cities is naturally less curative than that of the country, seashore, or mountain. The purer the air the better, and contrary to a prevalent notion, the colder the air the better, provided only the patient can and will educate himself to be out in it and breathe it freely. It is said that the only climate in the world in which pulmonary tuberculosis does not exist is that of Iceland.

It is true that changes of climate exert a powerful stimulant action upon nutrition for a few months especially. Hence persons afflicted with pulmonary disease who have means to travel can often benefit greatly by changing from the seashore to the mountains or *vice versa*, after they have ceased to improve as at first. But to send tuberculous patients with

slender purses to distant resorts in the hope of finding some peculiar or magic virtues in the air of the place different from those in their own is usually as disappointing as it is cruel. Such patients as can ill afford the luxury of travel, if still in an early and curable stage, should be urged to lead an outdoor life in any locality (preferably away from large cities) where they can do so most conveniently and economically, and where the climate is not so rigorous as to prevent such a mode of life. If they are in a far advanced and hopeless stage they should be made as comfortable as possible in their own homes.

About twelve years ago a clergyman resident in Delaware came to Atlantic City with a diagnosis of pulmonary tuberculosis, made by a prominent specialist in Philadelphia, and sought my advice. It was a plain case, a large part of one lung being consolidated; but softening had not begun. At that time I had given little thought to the subject of diet in such affections, but poor parsons are not likely to be overfed. I told him to give up his pulpit for a year and go into the country, spending his time on horseback or in any way most agreeable to him, so long as he remained in the open air. He was also to keep up counter-irritation over the affected lung. He took the advice, and got well, and was able to resume his work by the end of the year. I have never seen him since, but he often sends me a box of the best Delaware peaches, accompanied by a letter full of gratitude to me for having shown him the way that led him back to health.

AN EXPLANATION OF THE GREAT FREQUENCY OF RICKETS AMONG NEAPOLITAN CHILDREN IN AMERICAN CITIES.[1]

By IRVING M. SNOW, M.D.,
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All American physicians who are active in hospital or dispensary life have noticed the great frequency of rickets among Italian patients. A very large proportion of the children of this nationality present well-marked symptoms of rachitis. Indeed, the most severe cases of rachitic deformity seen in orthopedic practice are from Southern Italy. This peculiarity of Italian children is all the more interesting because the disease was, until recently, only occasionally seen in this country, and is still rare among Anglo-Americans. In the monotony of digestive and respiratory disorders of a children's clinic it is safe to predict that in nearly three-fourths of the Italian children the disorder for which they are brought will be associated with rickets, and that this is the only pathologic difference between them and the rest of the community.

The study of the process of acclimatization of the various nations of northern and southern Europe that enter into the composition of our cosmopolitan population is as yet incomplete. Nevertheless, it is certain that any race not inured to our bleak northern climate must not only change its dress and regimen of life, but undergo a kind of cellular transformation in order to be in harmony with its environments and to preserve a vigorous physique in the second and third generations. Adults may endure extreme heat or cold, and be transplanted either to the tropics or the Polar Seas without harm, but this is not true of the children of the first generation, who endure very badly any marked change in the air to which their ancestors have for centuries been accustomed. History records many instances of the physical decadence of northern people who have migrated to semi-tropical regions.

Rachitis must be regarded as a serious condition in a child, as a constitutional deterioration, localized in the skeleton, muscles, nervous and digestive systems. A rachitic child has a lessened resistance to all of the acute infections diseases, especially those involving the respiratory tract. If rickets be increasingly prevalent among our city poor, and if it shows itself in its most serious phases in any one particular class or nationality, the fact is worthy of earnest scrutiny and investigation.

In the study of rachitis among Italian children in American cities, it is, of course, necessary to determine (1) the proportion of rachitic children among Italians; and (2) the proportion of rachitic children among other nationalities. Lastly, if rachitis be most frequent among Italians, the various supposed causes of the disease should be analyzed, to discover what especial factor, as diet, climate or habit of life, is chiefly in operation to produce this constitutional dyscrasia.

The object of this article, after indicating the degree of the prevalence of rickets among the various races of our population, is to show that the true reason for the very frequent development of the disease in Italians is found in the fact that it is the effect of our cold, damp, northern climate upon the offspring of a race that has lived for many hundred years in the warm, dry, sunny air of Naples and of Sicily. It is the physical deterioration of a southern race in a northern climate. I hope to be able to prove that the usual causes of rickets—city life, improper feeding, acute or chronic digestive disorders, bad air, crowding in dwellings, uncleanliness, infectious disease—which produce rachitis in a moderate percentage of the children of the northern races, act with far greater frequency and virulence

[1] Read before the meeting of the American Pediatric Society, held at Washington, D. C., May, 1894. Printed by courtesy of the Archives of Pediatrics.

upon the first generation of Neapolitans born in America.

To ascertain the exact ratio of rachitic children among Italians and other nationalities, I shall present the statistics of my dispensary service for a year.

Total number of children under three years, 200: Italians, 108; other nationalities, 92. Of the Italians, 76, or 70 per cent., were rachitic. Of mixed nationalities 11, or 12 per cent., were rachitic.

The parentage of the latter class was Scotch 1, American 1, Jewish 1, German 2, Irish 2, Polish, 3, not noted 1. Nearly all of the children were born in this country, but were chiefly of foreign extraction. My diagnosis of rickets was made after a careful examination of each child, and was based on well-marked beading of the costo-chondral articulations, craniotabes, etc. Characteristic transverse constrictions of the thorax were invariably more pronounced among the Italians—all of the cases of craniotabes and genu valgum or varum were among them. Whole families of children, as seen in successive years, were affected, so that rachitis was not only more frequent, but also more severe among Italians.

Of the seventy-six rachitic Italian children all had the classic rosary, and most of them were fat; many of them showed extreme muscular weakness, and were late in holding themselves erect and in walking; eighteen had transverse constriction of the thorax, with extreme narrowing and deformity of the chest; four had craniotabes, one with hydrocephalus; six had genu valgum; eight extreme muscular weakness; three enlarged spleen; two enlarged liver.

I was unable to discover that rickets in the Italians had any effect in delaying dentition. Most of the Neapolitan babies developed their teeth early, and without disturbance.

Eleven children, not Italian, all had the rachitic rosary; two had transverse constriction of the thorax. There was no craniotabes or pronounced limb-deformity among them.

The proportion of rickets among children of other races, 12 per cent., is small, and is probably insignificant as compared with that found in the densely populated cities of the Atlantic coast. In Buffalo the tenement-house class is relatively small; the houses are nearly all detached; and very little real destitution exists, even among recent emigrants.

Parry, in 1878, found 28 per cent. of all children brought to the Philadelphia Hospital to be rachitic; 20 per cent. of the children coming to autopsy in the New York Foundling Asylum showed rachitic changes in the bones.

Having demonstrated something of the prevalence of rickets in Buffalo, 70 per cent. of Italian and 12 per cent. of the children of other nationalities, we may next inquire more precisely into the antecedents, environments and mode of life of the Italians in their original home. Nearly all of the Italians in Buffalo emigrated from the country districts about Naples, the modern Italian province of Campania; a very few came from Sicily. None, to my knowledge, came from the cities of Naples or Palermo, and none from Central or Northern Italy. It is, therefore, understood that the Italians alluded to in the paper are Neapolitans. Further, the Neapolitans differ as widely from the Tuscans or Piedmontese in temperament, mode of life, and in climatic surroundings as do the citizens of Boston, Mass., from those of Charleston, S. C. The climate of Turin, in Piedmont, is sub-Alpine, and in the winter months is colder than that of Copenhagen.

We may now raise the question as to whether the frequency of rickets in Neapolitans is not merely a racial peculiarity, a phase of the southern Italian constitution in infancy. Upon this point I shall quote from Hirsch's *Historical Geographical Pathology*. In this work it is declared "that rickets exists everywhere, although most common in Europe and North America, in the temperate zone; that a cold, damp climate, subject to frequent changes, is favorable for its development, as is shown by its existence in endemic form in England, Holland, France, Germany, Austria, and Northern Italy."

Rickets is extremely rare, except in a few great cities, in Southern Italy, Spain, Greece, Egypt, Syria, and among the half-starved vegetarian people of Hindostan, China, and Japan. Rachitis is rare at high altitudes and in the extreme north, and is found in endemic form in large cities. Its absence in tropical and semi-tropical regions is contrasted with the great infant-mortality from all kinds of diarrheal diseases in these climates. Hence, as rickets is rare in the districts of Southern Italy, whence my patients are drawn, and is present in 70 per cent. of the first generation of Neapolitans born in this country, being nearly six times as frequent among them as among Anglo-American, Irish, Germans, Poles, and Canadians, some especial cause must exist to produce this grave deterioration in physique and to intensify the so-called blood-irritant or other cause of the disease. I shall enumerate the various factors that may play a rôle in the etiology of rachitis, to discover if the endemic character of the disease among Neapolitans in North American cities be the result of any one cause.

According to Cheadle, any injurious influence operating in not too sudden a manner on an infant may produce rachitis. The Italian colony in Buffalo (including between 4000 and 5000 persons) lives near the harbor, on damp ground, in old two-storied and three-storied tenement-houses and frame

cottages abandoned by the Irish. Nevertheless, the population in this neighborhood does not exceed 100 to the acre, as in the vicinity there are large open spaces, wide streets, and railroad-yards. The parents are strong, healthy, young people. The women are well-shaped and have easy labors. I can find no ground for believing that there is any hereditary weakness of constitution or tendency to rachitis. All of the adults appear well nourished. The fare includes soups, meat, bread, cheese, and vegetables, and is as plentiful, if not as expensive, as the food of the average American laborer.

Crowding in dwellings is more common among the Italians than among the rest of the community. A family of five or six usually occupies two rooms, the cooking and eating being done in one room and the other being used for sleeping. It goes without saying that from our standard of living their dwellings are dirty, overcrowded, and poorly ventilated.

The babies of the family are housed for a large part of the year in cold or rainy weather, and must continually breathe a polluted atmosphere, a circumstance that undoubtedly would depress an infant's health. This point will be discussed later in connection with climate. If overcrowding in sleeping-rooms and lack of fresh air were the sole cause of rachitis, it would be nearly universal among all recent emigrants from Ireland, Poland, and among the lower class of Hebrews, as well as among Neapolitans.

Most of the Italians say that they are better fed and clothed in America and that their sleeping-rooms are not as crowded as the small, smoke-filled hovels inhabited by the laboring-class in Naples, and are better ventilated.

Concerning the hygiene of the skin, the Italian babies were never as clean or as well cared for as the average American, Irish, or German. However, to say that they were, as a class, filthy would be untrue. They were warmly clad in winter, being usually swathed in a long, thick roll of woollen cloth.

Artificial diet, the feeding of infants with cows' milk, condensed milk, starchy or dextrin food, with an excess of carbo-hydrates and a deficiency in fats, has been rightly held to be a frequent cause of rickets; yet most of the Italian children received the ideal infant-food, breast-milk.

Analysis of food of Italian children under one year. Total number, 59.

Rachitic, 36: suckled, 21; suckled and fed, 8; artificially fed, 7. Not rachitic, 23: suckled, 17; artificially fed, 6.

Prolonged nursing cannot properly be held to be a cause of rickets, as in Japan, where children are suckled for two or three years, rickets is scarcely ever seen. A small proportion of the Italian women nursed their children for from fifteen to eighteen months. It was common to see rickets in children whose digestion was apparently good and who received no other food than breast-milk. Nearly all of the artificially-fed babies received some breast-milk up to the age of twelve months, the milk being supplemented by soups, condensed or cow's milk or gruel. The quality of the breast-milk of the Italian women may be questioned, as it was not analyzed; yet the evidences of poor milk, deficiency in fats, and excess of albuminoids, were not shown by any usual symptom, stationary or diminishing weight, or habitual vomiting. On the whole, the rules of a proper infant-dietary were no more frequently violated among the Italians than among other races; indeed, the Italian babies were more frequently breast-fed than the remainder of the dispensary patients.

Influence of intercurrent diseases. As a child is seldom brought to a medical clinic for rickets itself, I will state the various conditions for which the Italian children were treated. Total, 76.

1 pneumonia; 21 diarrhea; 5 dyspepsia; 3 meningitis; 9 bronchitis; 12 whooping-cough; 1 congenital heart-disease; 3 tonsillitis; 1 typhoid fever; 1 hydrocephalus; 1 Pott's disease; 2 syphilis; 6 extreme muscular weakness; 2 otorrhea, 1 eye-trouble; 1 injured spine; 4 not recorded; 1 cerebral monoplegia; 1 limb-deformity.

Pulmonary diseases, bronchitis and bronchopneumonia, complicating measles and whooping-cough, as seen in the dwellings of the Italians, were frequent and fatal among them; yet the large mortality from respiratory diseases among these children might properly be regarded as due to the weak respiratory muscles and the soft ribs of rachitis.

Digestive disorders, chronic vomiting, and acute or chronic diarrhea were no more severe or more frequent among Italians than among other patients. It is nevertheless true that any digestive trouble is more prolonged in a rachitic baby and yields less readily to treatment than in a previously healthy child. I was unable to observe that the digestive disorders of these rachitic babies were other than intercurrent affections. The rachitic children were usually brought for some acute malady of a few days' or weeks' duration, and it was evident that the constitutional disease had developed slowly and without marked symptoms.

When all these causes of rachitis are reviewed it is certain that enough are in operation to produce the disease in a moderate proportion of Italian children as well as in those of other nationalities. The conditions are insufficient to account for the fact that rachitis is nearly six times as prevalent in Italians as in other classes of the community, and is present in 70 per cent. of a race with whom the disease is rare in the mother country.

I have not yet discussed the influence of climate in the etiology of rachitis, and this Theobald Palm regards as the chief cause. Virtually all of my patients were born and lived in the same climate. The disease is rarest among Anglo-Americans who have lived in the country for generations. It prevails to a moderate extent among the children of English, Irish, Germans, and Poles. These races are inured to the cold, changeable atmosphere of Northern Europe. It is far different, however, with the Southern Italian, who has lived for many centuries under the clear skies and in the warm sunshine of Naples and Sicily. In these fortunate regions men, women, children, and babies are out of doors most of the year.

Besides the differences in climate between Buffalo and Naples, which are very great, the Italian babies in our American cities are housed for a large portion of the year on account of inclement weather, and breathe damp, foul air, which is always too cold or too hot. If there be any law of heredity, a race whose vitality and nutrition are accustomed to a semi-tropical climate and pure warm air cannot thrive amid such surroundings. The change is too sudden and acute, both in temperature and in atmosphere.

What are the differences in climate between Naples and Buffalo? I have constructed a chart indicating, in rather a schematic way, the temperatures and rainfall of the two cities, whose climate is a fair index for the surrounding districts.

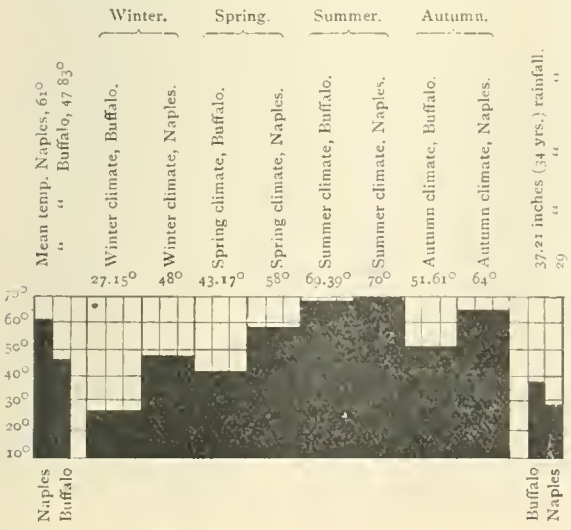
CLIMATOLOGY OF NAPLES AND BUFFALO CONTRASTED.

Naples: Dry and warm in winter; mild, with occasional rainy days in November and latter part of January and in February. Summer atmosphere tempered by sea-breezes.

Buffalo: Climate tonic and bracing; changeable and uncertain at all times.

	Rainy.	Cloudy.	Fine.
Naples	100	120	145 days.
Buffalo	289		76 "

Temperature—(of Buffalo, average 18 years; of Naples, 20 years):



The situation of Buffalo, in 42° 53′ northern latitude, on Lake Erie, exposes it to bleak winds in the autumn, winter, and spring; the annual rainfall is 37.21 inches, 8.21 inches greater than that of Naples, which is situated in 40° 52′ northern latitude. In Buffalo variations in temperature are very great and very sudden. The mean temperature for a year in Naples is 61°, in Buffalo 47.83°—that is, 13.17° lower than in the Italian city. The winter temperature of Naples is 48°, that of Buffalo 27.15°; the American city is thus 21.85° colder. The mean temperature in spring in Naples is 58°, in Buffalo 43.17°; Buffalo has the colder temperature by 14.83°. In summer, curiously enough, the mean temperature of both cities is nearly the same, about 70°. The autumnal difference is 12.39°, Naples having a mean temperature of 64°, Buffalo 51.61°. Between the winter and summer climate of Naples the variation of temperature is 22°, of Buffalo 42.24°. Again, Buffalo has only 76 clear days in a year compared with Naples, which has 145.

The intrusion of a southern race into a northern climate is an occurrence that has few parallels in history. It is reasonable to suppose that serious changes in physique seen in the first generation would follow a change of residence from an out-of-door life in a semi-tropical country to the gloomy skies and long winters of the North Atlantic and lake cities. In proof, I may point to the rapid deterioration of negroes in cold climates, or to the physical decay of the Anglo-Saxon race in India or in the hot climate of North and South America.

Whatever may be the disadvantages of life in warm climates, whether of crowding in dwellings, bad drainage, water, and food, it is certain that rickets is seldom developed among the natives of Southern Italy, Egypt, and India. The probability is that the misery, ignorance, and neglect of hygiene amid which the children are reared are in some degree offset by the bright, warm sunshine. To secure a perfect development for the young of the human species a large portion of the day should be spent out of doors, and, if possible, in the sun. This cannot be accomplished with the children of the city poor, and it is to this lack of pure air and sunlight that we may attribute the spread of rickets in densely populated urban communities. With the first generation of Neapolitans born in American cities, all of the causes of rickets—improper food, bad air, depression caused by infantile maladies—are intensified and accentuated, and the presence of rachitis in seven-tenths of the Neapolitan babies in Buffalo indicates a constitutional deterioration from a great and sudden change in environment.

In plants and animals, adaptation to a different climate is never effected suddenly—a number of healthy adult individuals are first transplanted to

some intermediate station, where they may grow for several years. Some of the stock may develop vigorously, some deteriorate. As soon as the stock has been exposed to all the vicissitudes of climate the healthiest individuals may again be moved farther north, the necessary nursing and protection being of course given. Man has certainly greater powers of adaptation to climatic changes than animals or plants; still the history of the early years of a migration to a different climate, conducted even under the hygienic laws of a high civilization, is usually one of suffering and great infant-mortality.

The Teutonic races have always fared best when they have found a climate like that of their original home. Man is best able to maintain his health and multiply when he travels in isothermic lines. Migration either to a warmer or to a colder climate should be conducted slowly, step by step, allowing one or two generations to intervene before the extreme is reached.

In conclusion, I shall quote from Theobald Palm's excellent article in the *Practitioner* on the "Etiology of Rickets." He says: "The effect of light upon the human organism is obviously more complex than its direct chemical action upon the tissue immediately exposed to it. The exhilaration which we experience in bright weather, and the depression caused by dull, gray skies, must have a corresponding physical change in the nutrition or molecular condition of our nervous centers, and these react upon the general nutrition. The continuous withdrawal of a due measure of this normal stimulus to healthy functional activity must produce upon a young, actively-growing organism serious and far-reaching results." He also states that as light is essential to the well-being of the growing organism, the exclusion of light is a condition of development of the same organism in the embryonic stage. He suggests that the deficiency of light and sun after the embryonic stage is past, when nutrition is dependent on chemic changes of light and air, lead in plant and animal to partial continuance of the embryonic state, as seen in man and higher animals in rickets in the continued growth of embryonic cartilage instead of its conversion into bone.

VITAL STATISTICS OF THE NEGRO.

BY FREDERICK L. HOFFMAN,
OF HAMPTON, VA.

IN THE MEDICAL NEWS for April 7, 1894, p. 389, Dr. M. V. Ball discusses at some length the differences in the mortality of the white and negro races, and maintains that these differences are due more to social causes and environment than to permanent race-characteristics. He advances the theory that if the negro were placed, from childhood up, under the same social influences as the white man the present differences in the mortality would probably disappear. Do these conclusions bear examination in the light of well-known facts on the subject? Or is it possible to bring forward proofs to the contrary and to establish the position held by a large number of writers on the subject, that there is among the negroes a well-recognized race-proclivity to disease and death which manifests itself even when the negro is placed under exactly the same conditions, social and economic, as the white race. To do this will be my aim in this paper.

In the first place it will be necessary to bring forward some figures as to the relative mortality of the two races. From a recent report of Dr. J. S. Billings I have compiled the following table, showing the respective death-rate (stillbirths included) for a number of Southern cities:

	Rate per 1000.	
	White.	Colored.
Washington, D. C., 1890 . .	19.79	38.22
Charleston, S. C. " . .	24.75	53.94
New Orleans, La. " . .	25.41	36.61
Richmond, Va. " . .	22.25	40.80
Memphis, Tenn. " . .	23.37	29.97

According to this table the difference in the mortality of the two races is anywhere from 25 to more than 100 per cent.—a difference large enough to warrant serious consideration. Are these differences accidental or permanent? An investigation of the vital statistics of any city in the South will show that year after year, for the past twenty years, this difference has been about the same.

In the following table I have brought together the death-rates, according to race, for the two cities, Washington, D. C., and Richmond, Va., for the period from 1876 to 1892.

	Washington, D. C.[1]		Richmond, Va.[2]	
	White.	Colored.	White.	Colored.
1876 . .	19.54	40.78	22.60	31.10
1877 . .	19.97	38.22	20.70	32.50
1878 . .	19.28	37.37	19.20	29.90
1879 . .	19.05	36.90	20.90	31.90
1880 . .	17.63	35.71	20.70	36.30
1881 . .	18.18	31.27	20.70	41.80
1882 . .	18.91	34.54	20.70	36.70
1883 . .	17.97	30.69	19.70	36.50
1884 . .	19.71	32.29	20.30	37.10
1885 . .	19.97	34.45	20.70	32.40
1886 . .	17.96	32.35	19.10	31.40
1887 . .	17.74	31.15	19.90	36.40
1888 . .	18.52	30.16	19.90	33.60
1889 . .	15.96	30.49	18.30	33.60
1890 . .	17.25	32.87	22.30	37.80
1891 . .	18.27	32.68	20.70	34.10
1892 . .	19.67	31.19	19.20	33.10

In no instance does the colored rate approximate the white rate. Without exception the colored rate exceeds the white rate by a ratio of from 50 to 100

[1] Annual Report of the Health-office for 1892.
[2] My own calculation for inter-censal years.

per cent. On the basis of the statistical law of large numbers the assertion may be made that the cause of such a difference must be fundamental and permanent rather than social and transient.

But Dr. Ball maintains that if the social conditions were the same this difference would disappear. We, however, possess in the records of the United States Army proof to the contrary—proof so convincing that it will be hardly necessary to add anything further in support of the theory of distinct race characteristics. The following little table shows for three census years the mortality in the United States Army according to color. The ratios are based on 1000 of mean strength for each race:

	White.	Colored.
1870	13 5	20.6
1880	9.9	19.5
1890	8.4	11.5

I cannot do better than to quote at some length the language of the Surgeon-General in regard to the characteristics of the negro race. He expresses himself as follows in his report for 1889 (p. 18):

"The death-rate of people of African descent is always higher than that of the whites living in the same settlement. This is ascribed, for the most part, to the comparative poverty of the colored people, which crowds them into their dwellings in the less desirable part of the locality. *It would seem, however, from the medical report of the army, that there is a race-proclivity to disease and death;* for, although the colored troops are in all respects subject to the same influences as the white troops at the same station, the cases of sickness and mortality are greater among them than among the white troops. Both sets of men are selected by the same recruiting officers, sent to the same depot, transferred for service to the same posts, lodged in similar quarters, furnished with the same allowance of clothing, use the same water and the same food-supplies, perform the same duties, and are subject to the same exposure, yet the admissions to sick-report were 1.464 per 1000 for the colored, and 1.249 per 1000 for the white troops. The non-effective were 44.56 per 1000 as compared with 27.67 for the white troops, and the death-rate 13.66 per 1000 for the negroes, as compared with 7.55 for the white troops."

Coming from such a recognized authority and in such an emphatic manner, the remarks just quoted deserve the most careful consideration of the student of the subject. But the same report contains another proof of this race-proclivity to disease and death. As will be noted in the next table, for the British troops in the West Indies, the mortality and morbidity of the negro under conditions exceptionally favorable to him are still largely in excess of those of the white race.

MORTALITY AND MORBIDITY IN THE BRITISH ARMY IN THE WEST INDIES (ratio per 1000).

		Admission to sick-report.	Deaths.	Discharges.	Non-effective.
1886	White,	1.168	14.70	11.76	55.09
	Colored,	1.292	19.64	16.07	57.25
1876–85	White,	0.893	15 42	13.95	44.68
	Colored,	1.074	15.38	26.79	58.38

These figures are supported by the mortality-reports of the islands in the West Indies. From the blue-books, registration-reports, and annual reports, I have compiled the following table, which I believe is the first attempt to present in tabular form the mortality for a number of West Indian colonies. It has been impossible in the table to separate the races, but the white population forms such a small percentage that the result is but slightly affected. The rates are per 1000 of the living population:

Antigua,	35.5	Virgin Island,	19
Barbuda,	30	Martinique,	35
St. Kitts,	42	Guadeloupe,	22.5
Nevis,	35	Trinidad (1893)	27.6
Dominica,	18	Jamaica (1893)	20.9
Monserat,	20	Barbadoes(1891)	37.26
Bahama Islands	27.3		

We have here the returns from a large number of islands, which almost without exception show a rate above 20 per 1000. If we take into consideration possible omissions in the registrations, the figures presented will fall below rather than above the actual condition. As life in the West Indian Islands is to the negro a paradise on earth, being an out-door rural life, with little manual labor attached, we may well ask the question what his death-rate would be if he were placed in densely populated cities. It is difficult to ascertain the actual natural increase in the population, due to the constant inter-migration between the islands and the influx of coolie population. If predominance of females, however, be considered a factor as showing a population making but a small natural increase, the fact that most of the islands have an excess of females might be cited in support of such a theory.

But, to come back home again, let us consider the effect of similar social surroundings in the two races. For Richmond, Virginia, I have recently compiled the data for the different wards, and find that those wards that contain the largest colored element also show the largest death-rate, while the "white wards" of the city show much more favorable rates for the colored population. But the fact is that there still remain the same differences between the two races; that is to say, if the white rate goes down so does the colored rate, but the relative position of each remains unchanged. This will appear clearly from a study of the next table.

Of course it is not possible to trace the population distinctly, but it may be accepted in a general way that the first three wards represent the so-called "better part" of the city, while Jackson ward in particular is the so-called "Africa" of Richmond. Thus, placed under better social and sanitary conditions, the death-rate will diminish, but will still be from 50 to 100 per cent. in excess of the white rate. Two recent reports of the Census Office on the

vital statistics of Baltimore and Washington, New York and Brooklyn show similar results.

Mortality of Richmond, Va., by Wards and Color.

(Rate per 1000 of population, 1890).

Wards with large white population:				
Madison,	white rate,	18.3	Colored rate,	30.0
Monroe,	" "	14.8	" "	21.7
Clay,	" "	18.0	" "	29.0
Wards with large colored population:				
Jefferson,	white rate,	25.5	Colored rate,	37.0
Marshall,	" "	24.0	" "	39.0
Jackson,[1]	" "	38.9	" "	40.0

If we now proceed to consider the influence of a high death-rate on the average duration of life, it will be seen by the table that follows, for the city of Washington, D. C., that there is an enormous difference between the length of life of the two races. I give the data for four different years, covering a period of thirteen years:

Average Age of White and Colored Decedents in Washington, D. C., 1881–92.

	White.	Colored.
1881	32 years.	20 years 11 mos.
1885	32 years 3 mos.	22 " 7 "
1890	33 " 8 "	22 " 10 "
1892	34 " 6 "	23 " 4 "

On the basis of these figures a white man, on an average, has a longer duration of life by some ten or twelve years than the colored man—a difference that has been recognized, and has been verified by subsequent experience, by all the life-insurance companies engaged in business on the so-called industrial plan. The following are the figures of the Prudential Insurance Co., of Newark, N. J., as quoted in the *Journal of the American Statistical Association*, vol. iii, p. 351:

Loss in Claims per $1000 Insured, 1883–93.

	White.	Colored.		White.	Colored.
1883,	15.30	23.41	1889,	15.45	21.43
1884,	15.27	18.75	1890,	17.11	21.49
1885,	16.04	22.47	1891,	16.71	21.44
1886,	17.90	24.44	1892,	17.91	21.32
1887,	16 59	21.49	1893,	17.34	17.89
1888,	16.60	21.68			

We have here another proof of the permanency of the difference in the mortality of the two races. Without exception the colored rate is in excess of the white rate, and that, too, in view of the fact that a medical examination was made in most cases, and that, therefore, the persons insured were much more nearly similar than the population in general.

If we now consider the mortality by groups of ages we meet with another instance of racial characteristics. On the supposition, generally accepted by economists, that the period of life below twenty is of little economic value, it will be important to a population to maintain as large a number of individuals as possible beyond the twentieth year. From the report of the Health-office of the District of Columbia for 1892, it appears that 59.90 per cent. of white males and 57.88 per cent. of white females survive the twentieth year against 38.51 per cent. of colored males and 42.24 per cent. of colored females. The economic loss that must result from such excessive mortality below the age of twenty it is difficult to estimate. If, further, we consider the age of forty as the end of the productive period, and as that portion of life's span in which we should enjoy the result of life's labor, we find, on examination of the same report, that 43.36 per cent. of white males and 38.94 per cent. of white females survive the fortieth year, against a percentage of 24.25 colored males and 24.27 colored females.

Both of the instances cited will confirm the assertion made in the beginning, that the characteristics of each race are fundamental, and not merely due to environment or lowly social condition. This point is brought out more clearly if we bring into juxtaposition the average duration of life of native and foreign and white and colored, which I have done in the next table for three American cities:

Average Duration of Life by Nativity and Color for Three American Cities.

	Boston, Mass.		Providence, R. I.		Washington, D.C.	
	Native.	Foreign.	Native.	Foreign.	White.	Colored.
1888,	32.66	31.01	35.66	30.29	33.16	22.90
1889,	31.56	31.01	36 18	31.19	32.66	21.90
1890,	33.75	32.32	35.14	30.03	32.66	22.83
1891,	34.47	32.51	36.88	31.01	34.58	22.75
1892,	32.86	31.45	36.39	32.70	34.50	23.25

Without exception, the native and foreign rates differ but slightly, while not in a single instance does the native or foreign rate approach the high rate of the colored population. The fact is well known that the foreign element of our large cities forms the principal population of the slums; yet the general death-rate does not seem to be affected by the mode of living. If the high rate of mortality among the colored population be due in the main to unfortunate social and economic conditions, why should not also the foreign element be affected in a similar manner? It is true that the Irish population shows some similarity in its mortality to the negro population, but until the collected data on the subject have been published a consideration of this point would be inadvisable.

Coming down to specific causes of death, the special liability of the negro to tuberculous disease is so well known as to need but passing mention here. From an article of mine on the "Vital Statistics of the Negro" (*Arena*, April, 1892) I quote the following table, showing the percentages due to this cause for six leading Southern cities. The figures repre-

[1] The high white rate for Jackson ward for 1890 was abnormal. The normal rate is from 22 to 26 per 1000. See Richmond Dispatch, July 17, 1894.

sent the percentage of deaths due to pulmonary tuberculosis to the total mortality:

MORTALITY FROM PULMONARY TUBERCULOSIS, BY RACE.

	White.	Colored.
Washington, D.C.	0.11	0.16
Atlanta, Ga.	0.11	0.15
New Orleans, La.	0.12	0.17
Charleston, S. C.	0.08	0.15
Memphis, Tenn.	0.12	0.18
Richmond, Va.	0.10	0.11
Average	0.10	0.15

We have here another striking proof of the constitutional difference between the two races, but the following table, compiled from the *Surgical and Medical History of the War*, will illustrate the point more forcibly:

DISEASE AND MORTALITY OF THE U. S. ARMY, 1861–65.

(Per cent. of total cases treated.)

	White.	Colored.
Pulmonary tuberculosis	0.39	0.91
Typhoid fever	0.36	0.56
Chronic diarrhea	0.16	0.27
Inflammation of the lungs	0.24	0 32
Average	0.29	0.51

Here again we meet with a proclivity to disease and death considerably in excess, *in every instance*, of the white rate. Need more proof be brought forward to maintain the assertion that the negro and the white man differ fundamentally in their physical organization and power of vital resistance? I could quote authority after authority to prove that such is really a fact. It was stated, as far back as 1845, of the freed negro in the Eastern Pentitentiary of Pennsylvania, by President Matthew L. Bevan, that the increase in deaths comes from the blacks. The increase in the mortality is found in the fact that the colored inmates from the County of Philadelphia are *so constitutionally diseased* as under any and all circumstances to be short-lived from their character and habit.—De Bow's *South and West*, vol. ii.

The condition of 1845 is the same to-day, and the city negro brought into direct competition with the white race has usually but one avenue out of his dilemma—the road to prison or to an early grave. Crime among the colored population of our large cities has been considerably on the increase; and, like his mortality, his morality differs fundamentally from the morality of the white race. Dr. A. Corre has made a study of the negro in the French West Indies, and comes to the conclusion that "the negro and the white man have *distinct physical organizations*. and, as a result, *distinct social aptitudes* (*Le Crime en Pays Créoles*, Paris, 1889). A similar study of the negro criminal in this country would lead to similar conclusions. The Northern cities contain the bulk of the negro population in the Northern States. In the large cities he crowds into a few wards, and forms his little Africa, no matter where he may be. If we select the four States of Massachusetts, Rhode Island, New York, and Pennsylvania, we find on examination that of the total colored population of these four States 33 per cent. live in thirty-nine wards of six leading cities. These same thirty-nine wards contain 25 per cent. of the total colored population of the nine North Atlantic States. If we take up the statistics of the State of Ohio we find that twenty wards of six principal cities contain 27.4 per cent. of the total colored population, while the same twenty wards contain white population. If we consider the population only 8 per cent. of the total of the six cities we find that the same twenty wards contain 51.6 per cent. of the total colored and only 14.3 per cent. of the total white population.

But Chicago furnishes the most surprising condition. Here we find 64 per cent. of the total colored population of the city massed together into the First, Second, and Third Wards, which are the very slums of the city. The same three wards contain only 6.3 per cent. of the total white population. What else but a high rate of mortality and low degrees of morality could be the result of such tendencies of a race wholly unprepared for the intensity of the struggle for life in our large cities. If we take, for example, the proportion of criminals to the total population we shall find on examination of the report of the Chicago Police Department that the proportion of arrests of persons of color is 1 to every 2.7 of the colored population, as contrasted with a ratio of 1 arrest to every 19.1 of the white population. The negro population of the city increased 128 per cent. during the decade 1880–90, while the number of arrests increased 305 per cent. The white population increased 139 per cent. during the same period, but the number of arrests increased only 154 per cent.

For other cities the condition is very much the same. For the State of Pennsylvania the ratio of white convicts to the white population for 1890 was 1 to every 3504, in contrast with a ratio of 1 colored inmate of a penitentiary to every 370 of the colored population. In the city of Washington the percentage of illegitimate to total births is 26.40 per cent. for the negro and 2.5 per cent. for the white race. Yet the negro has been under religious influence for two hundred years, and in the capital he has had all the exceptional opportunities for mental and moral advancement. Does it seem reasonable to suppose that his present high rate of mortality and low standard of morality are due solely to environment?

On the strength of all the facts that are here brought together I cannot but repeat that the

differences are physical and permanent, and if a modification or change of his present-day tendencies is possible, the negro will first have to learn obedience to the laws of morality and hygiene, and adherence to the principle of duty rather than to the gospel of the rights of man. What to the white race is liberty is to the negro nothing but license, and if he has abused the freedom that was given him, it is not he who is to blame so much as those who had his education in their hands. What the negro needs is education—*genuine, not spurious*—and a sounder teaching of the first principles of every-day morality. To effect a change in his present-day tendencies will take generations, but only on the principles that have preserved the Anglo-Saxon race from decay will he be able to raise himself to a higher level and preserve his race from ultimate extinction.

GASTROSTOMY BY A NEW METHOD.[1]

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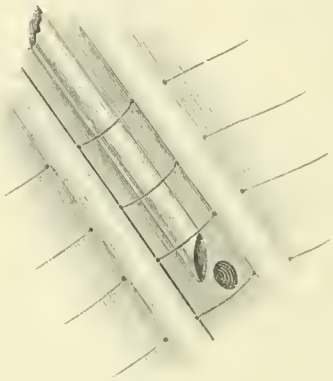
THE recent successful results of gastrostomy, thanks to improved methods, have made this a well-established operation in cases of carcinomatous or cicatricial stricture of the esophagus, and have prompted us to operate at an earlier time than in former years. Before the antiseptic period, among twenty-eight cases one alone recovered—or at least lived forty days after the operation. Since that time more fortunate results have been obtained, and it may now justly be maintained that a fatal issue is principally due to the fact that the operation has not been resorted to before the patient was too much reduced in strength.

Having eliminated the danger of sepsis, the next object is to overcome other sources of danger or annoyance. One important point in my mind would be to lessen the effects of shock in some cases in very feeble persons by feeding the patient as soon as possible after the operation through the fistula. The next and probably most important point would be to prevent the escape of food or gastric juice from the stomach, which would have a tendency to corrode and infect the wound. Quite a number of methods have of late been introduced with a view of obviating these sources of danger.

Hahn's method has for some time found favor with quite a number of surgeons. It consists in fixing the stomach to an opening made in the eighth intercostal space on the left side, so that the ribs perform the function of a valve. This was, no doubt, an improvement over the older methods, but, in some cases operated upon by Von Hacker, ulceration of the ninth costal cartilage resulted, and had these cases lived for a longer time serious mischief would very probably have ensued. Von Hacker, after this, tried to prevent leakage from the fistula by using the left rectus abdominis muscle for the formation of a sphincter, and was able to report twelve cases operated upon in this manner; the stomach, except in one case, not being opened until after an interval of forty-eight hours. In all of these cases recovery from the effects of the operation took place, but it was necessary to use an inflatable double rubber bulb to prevent leakage.

FIG. 1.



Method of Witzel.

Girard also makes a sphincter from the rectus muscle. Parallel to the operation-wound he dissects out strands of muscle-fiber about the thickness of a finger; these he crosses laterally, and draws the stomach through the sphincter-like opening. Ssabanejew makes an incision two or three inches in length along the left lower border of the ribs, beginning at the end of the ninth rib. He then pulls out the stomach by catching up a fold with a pair of intestinal clamps, and makes another incision near the sternal end of the sixth rib, from half an inch to an inch to the left of the mammillary line. With blunt instruments he separates the soft tissues between the first incision and the second, in this way forming a sort of tunnel. The parietal peritoneum is then stitched to the serous coat of the stomach at the base of the fold. The apex of the fold, after having been pulled through the tunnel, is stitched to the second incision. A small incision is afterward made into the stomach, and a drainage-tube is introduced.

The method of Kocher is somewhat similar to that just described. This surgeon makes a vertical incision, about four inches long, two inches above and to the left of the umbilicus; then he draws out a part of the stomach for about four inches. After closing the abdominal opening except for a distance

[1] Read before the Ohio State Medical Society at Zanesville, Ohio, May 17, 1894.

of about two inches, he stitches the stomach to the fascia and peritoneum with a continued suture, and then makes a channel in the manner adopted by Ssabanejew.

A procedure which has of late been highly extolled by some surgeons, and which so far has really given excellent results, is that devised by Witzel. Keen, of Philadelphia, in a recent article claims that this operation has reached such a stage of perfection that there can be very little room for improvement. From the description of his case, however, I see that he fed his patient for two days by rectal enemata—probably for fear that fluids might ooze out through the wound and produce infection. And yet I think that prompt feeding through the tube is a very important factor in some cases in feeble persons; at least, it impressed me so in a case in which I operated after Hahn's method a few years ago, in which the patient was *in extremis*. The case was one of cicatricial stricture caused by swallowing nitric acid, the patient dying from shock about twenty-four hours after the operation. I still feel that prompt feeding through the stomach might have averted the fatal result.

The operation of Witzel consists in establishing a canal between two folds of the gastric wall. A large surface of the stomach is drawn out through the abdominal wound, and a small incision is made into the viscus to admit a rubber tube of the thickness of a lead-pencil. This tube is stitched to the stomach with catgut, whilst the upper end projects from the external wound. Two parallel folds of the stomach are then taken up so as to envelop the

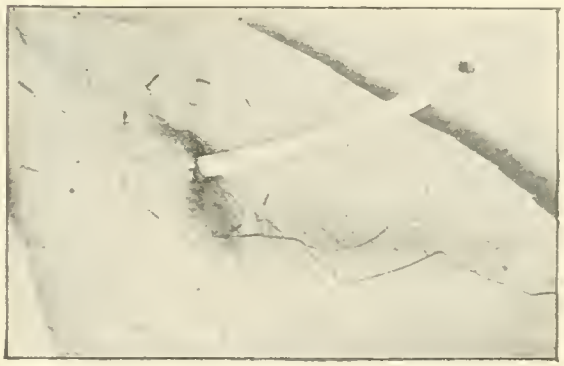
FIG 2.

Method of Witzel.

tube; their free margins are stitched together by three or four Lembert sutures and several ordinary sutures. The canal thus made is a little over an inch long, and is left exposed at the bottom of the wound. A number of sutures will then fix the stomach to the abdominal opening.

Some experiments upon dogs have suggested to me a plan of procedure based on sound anatomic principles, and which, if not better than Witzel's method, is at least equally as good. In the dog the result has met every point that it was *a priori* intended to accomplish. The first steps of the procedure are the same as in Witzel's, an incision about three inches long being made along the left border of the ribs. The point for the introduction of the rubber tube is marked with the knife by a slight incision simply through the serous coat of the stomach.

FIG. 3.



Around this point as a center, and at a radial distance of a little over one inch, a purse-string suture is introduced by means of a straight needle and strong silk, and including only the serous and muscular coats of the stomach. Next the opening in the stomach for the rubber tube, about the thickness of a No. 15 American scale catheter, is made, and the tube is fastened by a silk or catgut suture. The purse-string suture is now drawn together, and there results a double sphincter, which will guard against any leakage from the stomach. With about six interrupted sutures I stitch the stomach to the parietal peritoneum, and both ends of the purse-string suture, which so far served to hold and steady the stomach, are now armed with needles and passed through the entire thickness of the abdominal wall on both sides of the wound and then tied in a loop. This arrangement will anchor the stomach firmly in position, and the suture can be removed in eight or ten days.

The dog upon which the experiment was made was fed immediately after the operation. On about the fifth day the tube in some way escaped into the stomach, but from the day of the operation up to the end of two weeks, when the dog was killed, not one drop of fluid escaped through the fistula. The latter was found patent post-mortem. The whole stomach was removed and filled repeatedly with water, and, as I am able to demonstrate to-day, it stands the test very well, not one drop of fluid escaping. The fistula was slit open in the presence of some members of the Society, and showed the two sets of valves plainly.) In a case operated upon by Mikulicz

according to the method of Witzel, in which death took place six months afterward, the stomach, after removal from the abdominal cavity and being filled with water, did not stand the test so well, although fluid never escaped through the fistula during life.

A hint thrown out by Ewald might be well worth considering. In carcinomatous stricture of the esophagus he advises the making of a fistulous opening in the vicinity of the pylorus, so as to permit the introduction of food directly into the intestines by means of a rubber tube. His observations lead him to assume that in such cases the digestive power and the motility of the stomach are almost totally abolished, and that this viscus will only serve as an incubator for microbes, as microscopic examination of the contents of the stomach under such circumstances revealed the presence of pure cultures of putrefactive bacteria. He further advises the occasional washing out of the stomach through the fistula with a solution of boric acid, resorcin, salicylic acid, or similar agent, or the direct introduction of one of these through the mouth. Brandy swallowed in teaspoonful-doses may also act as a disinfectant.

CLINICAL MEMORANDA.

CELIOTOMY UNDER UNUSUAL CONDITIONS.

With a Report of Ten Cases.[1]

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I DESIRE to give some practical illustration of the problems that confront the abdominal surgeon and to present some cases of widely differing type, selected for purposes of illustration. All the cases reported recovered from operation. All are living except one, who lived a year and a half and died of facial erysipelas.

The first case represents some of the later developments of neglected pelvic inflammation and their final cure by operation.

CASE I. *Hydronephrosis from obliterated ureter; pyosalpinx and ovarian abscess surrounding the vermiform appendix; catheterization of ureter.*—E. L. P., aged thirty-five years, of good heredity, was married nine years, and had three children and one miscarriage. Her first labor, seven years ago, appears to have been followed by sepsis, since which she has had numerous attacks of pelvic inflammation, usually starting as severe pain in the right ovarian region, and centering around the umbilicus. These attacks have increased in severity and frequency during the past three years, resulting in practical invalidism. The last attack, having lasted about five weeks, brought her to the Methodist Hospital, where she presented a deplorable picture, emaciated, vomiting green, and at times bloody, bile-stained fluid; a large undermining bedsore over the sacrum; the tissues sloughing to the bone; irregular temperature to 101°; leaky skin and thready pulse. The abdomen was tympanitic and extremely tender, a semifluid mass filling the right half of the pelvis.

More than three weeks were consumed in the careful preparation for operation, by unloading the bowels, improving the stomach and securing a better appearance of the sloughing bedsore, which last was a representation of the general condition. Just here, I may say, that there is a golden time to operate, and careful observation alone will determine it in some of these desperate cases. It is not always as soon as the diagnosis is made.

I am convinced that it is wiser in acute peritonitis, when the case appears to have *already reached a standstill*, and when pus is not known to be present, to operate after the acute symptoms have subsided, if the condition of the patient warrants waiting. Also, in some profoundly septic conditions such as this, I am sure that I have saved life by waiting day by day, until by cleanliness and careful nursing a retentive stomach and a better tone have been obtained. In other words, it is safer to nurse an almost moribund patient a little if previous care has been wanting. This is not to be mistaken for an advocacy of delay after hemorrhage, or in progressive cases, such as acute suppurative appendicitis.

Operation, November 21, 1893. Everything in the pelvis was adherent by thoroughly organized adhesions to a mass which afterward proved to be the right tube and ovary riddled with abscesses and surrounded by hyperplastic tissue The cecum was with difficulty freed down to the vermiform appendix, which passed directly into the inflammatory mass and was surrounded by it. The appendix was ligated off at two points, and came away afterward with the mass. When afterward dissected out it appeared healthy. The exudate appeared to pass behind the peritoneum at the outer border of the iliac muscle, and a tough prolongation was here ligated off. Thick, green, highly offensive pus, several ounces in quantity, escaped from the largest ovarian sac deep in the pelvis; but as a continuous stream of hot water was led to this point by the irrigation-nozzle, and kept constantly flowing out of the wound during the remainder of the operation, no harm was done. Thick pus does not readily mix with water, and may be carried along bodily by a heavy stream. The left tube and ovary were allowed to remain, as they appeared to contain no pus. The right kidney-region contained a large thin-walled cystic tumor, with a rounded lower end, flattened in alongside the spine, apparently a hydronephrosis. There was not a sign of inflammation about the mass, and no adhesion existed over it. It was decided not to open it then through the loin, as from its contiguity the bedsore would surely infect the wound. The fluid was considered not to be pus, because no adhesions of surrounding viscera overlaid the sac.

The patient made an excellent recovery from the operation, and looked better from the first. The temperature touched 100° on the third day for the only time. A glass drainage-tube was employed.

The question as to the proper disposition of the hydronephrosis still remained after recovery from the celiotomy. One month later the woman was free from pain, was going about the ward, had gained greatly in flesh, and had a good appetite, but the kidney-swelling was unchanged. She was now etherized, put in the Trendelenburg position, to allow the distention of the bladder with

[1] Read before the Philadelphia County Medical Society, April 11, 1894.

air, after the method of Dr. H. A. Kelly, and the orifices of the ureters exposed after dilatation of the urethra.

I demonstrated to my own satisfaction that no urine was coming through the right ureter, which had apparently been occluded by the unusually dense inflammatory infiltration that had previously existed. It was determined not to incise the sac, for if the ureter were obliterated a permanent fistula in the loin would result, while there was every probability of atrophy of the kidney occurring if nothing were done. Five months have now elapsed, the sac in the loin is with difficulty recognized, and the patient suffers no pain. Urinary examination was negative, and the quantity of urine, diminished for a few weeks after the celiotomy, became normal and remained so.

A letter received from the patient to-day expresses her great satisfaction over her restored health. She feels better than for ten years, and has gained twelve pounds over the highest weight of seven years. She was not weighed when emaciated by sepsis.

The relatively small abscess in the abdomen, limited by adhesions, and which can be opened and drained with safety to the patient, is a condition common enough.

It is very rare, however, to see recovery follow when the pus has been diffused from diaphragm to pubis and across the full width of the abdomen, as in the following case of obscure but probably tuberculous origin. As recovery followed, a tuberculous cause is made probable, for septic cases of this extent *never get well.*

CASE II. *Recovery from diffuse purulent peritonitis, probably tuberculous.*—Miss A. S., aged twenty-two years, was previously healthy. She was tall, active, and well-formed, and weighed 160 pounds. Her mother died of pulmonary tuberculosis. While menstruating the patient had an attack of so-called *la grippe*, and five days later thoroughly chilled herself by a cold bath, going to bed with a severe chill, followed by fever. Before rising the next morning there was sudden very severe general abdominal pain. Tympany and great general tenderness followed, with wiry pulse, dry tongue, and other signs of acute peritonitis. After a week of treatment, mainly by opium, at the hands of her physician, the woman was sent to the medical wards of the Methodist Hospital under the charge of Dr. J. H. Lloyd, who asked me to see her. It was now about two weeks since her illness began and one week since the pain started. The temperature was not irregular, and ranged from 101° to 102°. The eyes were abnormally bright; the cheeks flushed, the mind very clear; the abdomen universally tender and much distended. No tumor was discoverable. There were no signs of extra-uterine pregnancy. The uterus was small and moderately fixed, the vaginal fornices somewhat resistant, as though loose clot occupied the peritoneal cavity. Rectal examination showed a general fulness behind the uterus, but nothing suggesting a sac or tumor. At this time there was doubtful dulness in the flanks, which could not be confirmed later.

Pain and temperature improved slightly for two weeks, but the woman lost flesh. At the end of that time, four weeks after the onset, fluid could for the first time be positively demonstrated lying high up on the left side. The vaginal vault was now hard, and nothing could be determined from below. The fluid rapidly accumulated during the following week, distending the left side of the abdomen to the ribs; the pulse, temperature, and general appearance of the patient suggested the presence of pus, and she was now placed entirely in my charge. Operation six weeks after the onset of the disease revealed the following remarkable condition: The entire peritoneal cavity was lined by smooth, purplish, easily bleeding false membrane, and contained four pints of yellow, thin pus, with several ounces of pultaceous, yellow masses of purulent lymph resembling omelet in appearance. These masses were easily broken up, but ran out of the wound in irregular lumps many of which would have filled a tablespoon.

No intestines were to be seen; they were completely collapsed and occupied the hollows on either side of the spine in the upper abdomen and the region just over the insertion of the mesentery below, being completely covered by the single smooth sheet of false membrane. The hand was passed into the abdomen and the whole abdomen explored from the diaphragm to the bottom of Douglas' sac for granular surfaces of tuberculosis or for thickening or enlargement, to indicate the origin of the disease, but without result. The kidneys could not be separately outlined, being covered by collapsed intestine, but inasmuch as everything in the abdomen hugged the spine and posterior wall very closely, any enlargement would have been detected.

The region of the appendix yielded no light, though carefully explored. The ovaries, tubes, and uterus were free behind and easily outlined, as they lay plastered forward against the base of the bladder. The hand could be passed to the bottom of Douglas' sac and over the sacral surfaces. The slightest manipulation caused oozing of the surfaces of the peritoneum, which appeared greatly thickened, but contained no millet-seed nodules and showed no adhesions. A thorough toilet of the cavity was made, many gallons of hot, filtered, and boiled water being passed through, the fingers carefully dislodging lymph. Glass drainage was used, followed by a gradually shortened rubber tube, for five weeks. The discharge from the tube, while it contained some pus, was never offensive. The wound, being carefully washed with hydrogen dioxid frequently, healed rapidly. In the third week, after carefully sterilizing the glass drainage-tube to prevent inoculation with superficial discharges, eight ounces of warm Thiersch's solution were on each of two occasions allowed to flow into the abdomen under eighteen inches of hydrostatic pressure. This failed to dislodge any pus and returned quite clear, so the washing was not repeated. The patient improved very rapidly; put on many pounds of flesh; is without pain or tenderness, and the site of the drainage-tube is closed. Seven months after the operation she reported herself as well.

Through the courtesy of Dr. Riesman cultures were made for tubercle-bacilli from the pus obtained, but without result. A careful examination of a piece of the thickened parietal peritoneum removed at the edge of the abdominal wound also failed to show tubercle-bacilli. I am assured, however, by a pathologist that this evidence is not conclusive of the non-tuberculous character of the process. My own impression is that the origin was tuberculous, possibly in a kidney; that the fluid originally was ascitic and that it became purulent

shortly before the operation. Negatively, I know of no case of universal purulent peritonitis of long standing in which the patient has recovered if the source of the pus was due to ordinary infection, as from the bacterium coli commune or the staphylococcus pyogenes aureus. The relation to the kidney is suggested by the fact that during convalescence pus without casts has at times appeared in the patient's urine, and by the fact that she has stated that she long has given up the wearing of corsets because pressure over the region of the right kidney in the flank caused occasional discomfort. At all events, she now looks and feels well.

The following case is the only one in my experience in which perfectly normal tubes and ovaries have been removed except for fibroid tumor. The object was the cure of well-marked epilepsy of decided menstrual type. The patient remains well physically, but the improvement in the epilepsy was only temporary, and now, three years later, her condition is even worse. The case deserves to go on record as a failure, and serves still further to confirm the opinion now held by most neurologists, that in true epilepsy no permanent benefit is to be derived from an artificial menopause if no disease of the reproductive organs exists. This opinion was held at the time of operation; but three years' previous observation, and a record of every attack for one and a half years, showed the truth of the patient's statement that the epileptic attacks grouped themselves about her periods, had begun at puberty, and had been absent for two or three months at a time when her periods chanced to be absent. She was also confirmed in self-abuse, was not to be trusted with unscrupulous men, and her mind was becoming dull. She had for three years been confined in a home for incurables. The operation was the earnest desire of herself and friends, but was refused until a long trial of medical treatment proved of no avail in improving her condition.

These statements are made because I feel that operations upon the normal genitalia call for very distinct justification in each case. The history was as follows:

Case III. *Epilepsy; oöphorectomy; no improvement after three years.*—E. B., aged thirty-two years, was an epileptic from puberty at thirteen years. Her periods recurred every four weeks, and lasted from four to six days; the quantity was normal; pain was moderate. Usually from four to ten convulsions occurred just before or during the flow, with *none in the intervals.* An aura was felt from the umbilicus to the head; the tongue was bitten; the shoulder was dislocated several times; total unconsciousness occurred, followed by sleep or stupor. During sixteen years there were at least three occasions when the menses were absent two or three months, when no convulsions occurred during the same interval. Indiscretions in diet would bring on attacks, but almost never except near a period. Examination revealed no pelvic disease; the labia minora were unusually large. Though not considered very hopeful, after long treatment by other measures and consultation with several physicians, total removal of the adnexa was performed in June, 1891. Aseptic recovery took place. No menses have been observed since. For a year the convulsions were lessened in severity and frequency; but now, after three years, the woman is rather worse if anything. Her mind has continued to degenerate, and she has prolonged periods of hebetude. The effect on the self-abuse has not been learned.

Case IV. *Cirrhosis of left ovary; extreme pain; oöphorectomy; great improvement, lasting three years.*—E. T., aged fifty-two years, unmarried, was blind from childhood. A malignant tumor was removed from the right breast and axilla eight years previously by another surgeon. For four years prior to the celiotomy she had intense paroxysms of pain in the left ovarian region, almost daily, causing her to roll about the bed and moan or scream for hours. As other drugs failed, the morphin-habit was gradually acquired, and at the time of the operation her allowance was three grains daily. The pain was genuine and was much influenced by the approach of storms. After being under treatment with other measures for one year, celiotomy was performed. The left ovary was found to be exceedingly small, of the size of two white beans and very hard, though not calcified. It was removed, and there was uncomplicated recovery from the operation. No morphin was given from that date. The pain was very greatly relieved, and though the patient's surroundings remained the same, there was much improvement in weight and appearance. Now, three years later, attacks of pain are at times absent for months and are of mild character. The patient has never failed at every interview to express earnestly her gratitude for the operation and the relief it brought. She was seen well four days ago.

This case is unusual in that the operation was performed for *pain.* This is a deceptive indication, and very rarely by itself justifies abdominal operation.

Next follows an instance in which a pyosalpinx would partially empty itself at times, but for seventeen years made the patient an invalid; complete cure was brought about by operation, lasting four years to date.

Case V. *Pyosalpinx.*—J. D., aged thirty years, menstruated just once at twelve years, when she immediately became illegitimately pregnant and acquired gonorrhea. She bore a child that is still living, but had an extremely difficult labor, complicated by pelvic inflammation and mammary abscess. She has never had good health since, *i. e.*, for seventeen years. There is always pain in the left side, and also attacks of bladder-derangement, with abdominal pain and soreness, which confine her to bed for weeks. Six years ago she was in bed nine weeks with pelvic inflammation, when there was a sudden gush of ill-smelling discharge. She is now just able to be out of bed, but at times severe paroxysms of pain in the abdomen make it impossible to straighten the body for hours. When operated upon she had been in bed about three months with symptoms of pelvic peritonitis. Examination showed a tense, very tender fluid mass to the left of the uterus and bulging into the rectum. A few days later there was a discharge of several ounces of horribly offensive fluid from the vagina, aptly described by the patient as like "old rotten egg that is red." Two days later the menses appeared. This discharge gave much relief, but as her years of invalidism had continued after previous discharges, celiotomy was performed, and with the greatest difficulty two tubal and ovarian masses, riddled with pus-pockets, were completely removed. Flushing and glass-drainage were employed; and excellent recovery followed. For this

woman life began anew. For the first time in years she was without pain. There was rapid increase in weight, and for four years she has worked hard six days of every week, never ceasing to be grateful to the operator.

CASE VI. *Retroversion with descent; torn sphincter; anterior fixation of uterus.*—Mrs. B. (sent by Dr. M. K. Elmer, of Bridgeton, N. J.), aged twenty-nine years, had three children. Her sphincter was torn in labor two years ago, and she had no control of her bowels. Two attempts at repair at good hands in one of our large college-hospitals have greatly discouraged the patient by their failure. Complete success was obtained by a curved incision in front of the anus from one end of the torn sphincter to the other. The ends of the muscle were picked up by a strong catgut suture in a curved needle, and were brought together in front of the anus. The catgut was buried, and reinforcing wormgut sutures were *introduced afterward*. The result was permanent, and absolute control remains.

She had also adherent retroversion with salpingo-ovaritis, considered to be of a grade sufficient to render useless further attempts at cure without celiotomy. The uterus was stitched to the abdominal wall with silk. Twelve months later she reports great benefit from this operation, and freedom from pain, though obliged to do housework and nursing.

CASE VII.—The interest in this case lies in the opportunity that it afforded to examine from within the abdomen an inguinal ring upon which an operation had been done for hernia ten years before. Dr. John Ashhurst had operated for strangulation. Though I am unable to learn that any special effort was made to obtain a radical cure, the hernia never recurred. Aside from the pelvic condition of an adherent, prolapsed, sacculated tube containing inspissated and hardened inflammatory material, for which I performed celiotomy, the patient complained of pain at the site of the old rupture when standing. The inguinal canal was found to be closed at the internal ring, but a diverticulum of peritoneum not more than an eighth of an inch in depth passed behind the internal pillar of the ring, and without doubt served to nip a portion of intruding bowel. The resulting pain was afterward largely controlled by a truss.

At the time of the celiotomy the woman presented the usual picture of chronic invalidism, with mingled neurotic and objective symptoms of old pelvic disease. Several months of previous treatment in the hands of her physician, Dr. M. K. Elmer, and in my own at the Methodist Hospital, yielded little result. The diseased tube and ovary on the left side were finally removed. Buried silkworm-gut sutures were introduced into the abdominal wound. She made an aseptic recovery, and reports, nine months later, great improvement in general health and strength, and no pain except at the site of the old inguinal hernia. She has been married eleven years, but is sterile.

CASE VIII. *Tuberculosis of peritoneum; prolonged drainage without cure of disease.*—This patient came under my care, at the Presbyterian Hospital, for enormous ascites in August, 1892. She was forty-eight years old, unmarried, and had a tuberculous family history, the mother and sister presenting pulmonary tuberculosis, and nine brothers and sisters dying in infancy. Her illness began four months previously as a painless swelling of the abdomen, which had rapidly increased until the limit of distention had apparently been reached. She was emaciated, with a small pulse of 150, the stomach rejecting all but the smallest quantities of peptonized liquids. Vaginal examination without ether being impossible, rectal examination disclosed no apparent tumor, but a fixed uterus and small roughened masses on both sides. The extreme distention called for immediate relief. Celiotomy showed a condition of the visceral peritoneum which was considered at the time to be tuberculous, though the parietal peritoneum accessible for removal and examination was smooth and showed simply increased vascularity. The small intestine generally was hardened, stiffened, and contracted, its loops slightly adherent, except in the left half of the pelvis, where they were matted about a small, resonant enlargement which appeared like a portion of the descending colon. There was no tumor at this time. The adhesions were rough, from a vast number of minute granules. The peritoneum over the small intestines in the left side of the pelvis was red and covered with minute elevations like granulation-tissue. The ovaries and tubes were buried in rough, cheesy adhesions.

The desperate condition of the patient precluded any attempt to separate and clear up the small mass of intestines, and drainage alone was given a chance at cure. Two months and a half later the fluid had again accumulated, and a second celiotomy was done with the object of removing any nidus of disease in the left side, and possibly resecting the colon. On removing the fluid, however, large new-growths were found choking the pelvis and absolutely sessile upon the anterior abdominal wall four inches above the pubis. A nodule, as large as a small egg, was seated on the wall above the umbilicus, and many were scattered through the omentum and mesentery. The operation was evidently hopeless, and the abdomen was again closed, and drainage provided for. The incision gave rise to no difficulty, and the patient continued fairly comfortable for about twelve months, being occasionally relieved of the ascites by aspiration, the quantity obtained varying from eight to fourteen pints. Emaciation was extreme, but there was no pain as from malignant disease. The woman died of facial erysipelas, seventeen months after the first operation and fourteen months after the second. The autopsy was performed by Dr. H. W. Cattell, who considered the large masses, adherent to the uterus, tubes, ovaries, and intestines, together with a cyst unknown origin containing several pints of fluid, to be tuberculous. The specimen was shown by a resident physician, Dr. Swan, at the Pathological Society, and unfortunately lost, though referred to a special committee for examination.

The prolonged drainage of tuberculous disease of the abdomen is only curative when the disease does not involve the parenchyma of organs and is confined to the peritoneum. One such case under my own observation is apparently entirely well five and a half years after drainage by celiotomy.[1]

Radical operative treatment is demanded in some cases because the hernial sac is largely buried in the superficial fat, and a belt or truss has no chance to

[1] Trans. Philadelphia County Medical Society, 1894.

reach the orifice of exit through the fascia and muscles. In the following case, in a laboring-woman, mechanical retention of the hernia was impossible.

CASE IX. *Umbilical hernia in the obese.*—Mrs. C. was subject to attacks of pain and nausea from an umbilical hernia of spontaneous origin. The tumor was largely made up of irreducible omentum, and was contained in a very irregular sac, with numerous prolongations into the abdominal fat. The patient was very short and exceedingly obese. The adherent omentum was tied off and removed. The sac was dissected out completely, and the deep fascia and muscles were united by buried silkworm-gut sutures, four to the inch, and these were allowed to remain permanently. The skin and superficial fat were separately sutured. The woman made an uncomplicated operation-recovery, the wound being aseptic. Six months later the hernia had not recurred.

CASE X. *Adhesion of small intestine following celiotomy.*—M. D., twenty-six years, had both tubes and ovaries removed by a well-known operator one year before coming under observation. She had since been in different hospitals and in a home for convalescents, complaining of abdominal pain. This pain frequently caused nausea and vomiting, always preceded a stool, and was excited by the movement of intestinal gas. It was frequently referred to the umbilicus, and was considered to be of intestinal origin. Celiotomy in the Trendelenburg position disclosed two points of adhesion of the small intestine, one near the old incision, the other to an ovarian and tubal stump. The latter was freed with the scissors, and the bowel-wall stitched with silk, aseptic recovery following, though there was some vomiting late in the convalescence. One year later the patient was seen and declared herself cured. She had had no more pain, and had been working instead of leading the life of a hospital-inmate as before. Post-operative adhesions are best prevented by clean surgery and by the avoidance of constipation afterward.

RESECTION OF THE ANKLE-JOINT, WITH REMOVAL OF THE OS CALCIS, FOR ACUTE OSTEOMYELITIS.

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CASES of acute suppurative periostitis, or osteomyelitis are of so frequent occurrence as to attract no special attention. While in many cases the etiology is obscure, in some it is undoubtedly tuberculous. Clinicians have not been slow in recognizing the gravity of the affection, although it is comparatively recent that inflammation in bone has been treated like suppurative inflammations in the softer tissues, *i. e.*, by free incision.

The diagnosis of inflammation in bone is not always easy, some forms pursuing a slow course, and, giving rise to but little pain, are thus not diagnosticated until the cold abscesses which they cause appear.

As the result of osteomyelitis, the tibia and femur are seen to increase in size and to attain an enormous thickness. Such was the condition of a tibia from which I recently chiselled away part of the bone and removed sequestra.

The case of osteomyelitis considered in this report occurred in a child about seven years of age. The family at first thought him suffering from rheumatism of the ankle-joint, and for this supposed condition medicine was obtained, which afforded little if any relief.

When I first saw the case the joint was greatly swollen and inflamed. Pus had formed, and would soon have escaped spontaneously. Recognizing the serious nature of the disease a free incision was made into the affected parts, and nearly a teaspoonful of pus evacuated. Directions to have the ankle frequently washed with mild antiseptics were given, but were only imperfectly carried out.

At the end of a week the family was led to believe the child improving because he was suffering less pain, but upon examining the joint, at the end of another week, it was found to be in a far worse condition than when first seen. Several sinuses had now opened, and through these denuded bone could be felt. A sinus on the dorsum of the foot led down to the astragalus, from which a small piece of bone had exfoliated. This was removed. Several openings under the outer malleolus led to the calcaneum, from which the periosteum had separated.

As resection of the joint and removal of the dead bone offered the only prospect of saving the foot, this was done. The disease being confined chiefly to the calcaneo-astragaloid articulation, and involving the calcaneum mainly, I decided to remove that bone. For this purpose the patient was anesthetized with ether. An incision was made through the sinuses on the outer aspect of the foot, and carried from the calcaneo-cuboid articulation backward through the tendo Achillis. Through this incision the bone was grasped and removed. The sinuses leading down to the astragalus were now enlarged, and that bone was scraped and cleansed. The wounded surfaces were irrigated and dusted with iodoform. The subsequent course was favorable throughout. The wound healed firmly by granulations, and a useful foot was the result.

In separating the attachments of the calcaneum the operator should avoid wounding the posterior tibial artery. The vessel is here situated midway between the inner malleolus and the tuberosity of the os calcis.

MEDICAL PROGRESS.

Operative Treatment of Old Dislocations of the Hip.—HARRIS (*Annals of Surgery*, vol. xx, No. 3, p. 319) has reported the case of a ranchman, thirty-three years old, who, while threshing, was struck on the left hip by an iron pulley weighing about 350 pounds. The injury was so severe that the man was unable to use the leg, but he supposed that the injury was only a severe sprain, and that recovery would speedily ensue spontaneously. After walking around on crutches for about a month without improvement, he consulted a physician, who diagnosticated a dorsal dislocation of the left hip. The man was anesthetized and reduction attempted, but without success. Four days later a second attempt at reduction was made, and this was likewise unsuccessful. The man remained in bed for two days, and then got up and went around on crutches again. Two weeks

later a third attempt at reduction was made, and again without success. The man was unable to use the leg at all, and could only get about with the aid of crutches. The leg presented the usual characteristics of dorsal dislocation: slight flexion, adduction, internal rotation, and shortening, with the top of the trochanter above Nélaton's line. The whole limb was somewhat atrophied, and both active and passive motion were much limited and painful. It was now determined to cut down upon the joint. Accordingly, nearly four months after the injury, an incision about 14 cm. long was made in front of the great trochanter, between the tensor vaginæ femoris and the gluteus medius, leading directly down to the acetabulum and anterior surface of the head and neck of the femur. The acetabulum was found filled with a tough, adherent, connective-tissue proliferation from the anterior portion of the capsular ligament, which in falling over the cavity completely closed it. On cutting through the capsular ligament the head of the bone was found resting on the posterior and superior edge of the acetabulum in a shallow depression, the lining of which had a smooth, cartilaginous feel. Immediately in front of the head and helping to fill the cotyloid cavity was a piece of bone, curved in shape, about 3 cm. long by 1 cm. deep and 0.5 cm. wide, which had been detached from the posterior wall of the acetabulum, and which may have been an obstacle to early reduction. The head of the bone was still covered with smooth cartilage, while the neck had acquired new firm adhesion to all of the surrounding parts, thus producing a new capsular ligament. A restoration of the ligamentum teres could not be demonstrated, but a small portion of it was present in the depression in the head of the bone when this was turned out of its new joint. The adhesions of the neck were divided, and all the muscular attachments to the great trochanter and shaft as far down as the lesser trochanter were separated subperiosteally from the bone, thus liberating the entire upper end of the femur. By means of the gouge and sharp spoon the acetabulum was freed of capsular ligament and new connective-tissue formation. The cartilage lining the bottom of the cavity was found to be still smooth. The head of the bone could not, however, be made to enter the acetabulum, which seemed too small. The cavity was consequently enlarged somewhat posteriorly with the gouge and mallet, after which by considerable exertion and manipulation, the head was finally returned to its place and the leg assumed its normal position. The wound was partly stitched up, and the remainder packed with iodoform-gauze. The limb was placed in the extended position, slightly abducted, and externally rotated, a plaster cast put on and extension applied. The operation occupied two hours, and the patient suffered considerable shock, although the loss of blood was not large. Reaction took place promptly, and the progress of the case was favorable from the onset. There was considerable serous discharge from the wound during the first few days, necessitating rather frequent renewals of the dressings. In three weeks the wound was closed, but in another week there was a rise in temperature, with pain over the great trochanter. Upon opening one corner of the wound a small quantity of sero-pus was evacuated from a small cavity superficially situated over the trochanter and not communicating with the joint. This was drained by a counter-opening posteriorly, and it gave no further trouble. The extension was continued for three weeks. After its removal the leg swelled a good deal throughout its entire length. This swelling was relieved by tight bandaging, so that in about two weeks more, or six weeks from the time of the operation, the man was permitted to get up on crutches. In three months he could walk with a cane without pain in the hip. There was active motion in all directions.

As a result of this experience and from a study of the literature the conclusions are reached (1) that owing to the danger of fracturing the neck of the femur, of laceration of the great vessels of the thigh, of shock, and death, the application of great force to reduce old dislocations of the hip should be discontinued in favor of arthrotomy; (2) that subcutaneous operations in cases of old dislocation are without benefit; (3) that osteotomy below the trochanter can scarcely come into consideration at this day; (4) that resection is only to be thought of when reduction by arthrotomy fails; and (5) that the operation which has given the best results is free arthrotomy, with reduction after the method pursued in the case here reported.

Successful Suture of Perforated Gastric Ulcer.—BENNETT (*Lancet*, No. 3697, p. 21) has reported the case of a woman, forty-one years old, who while walking up stairs felt a sudden, violent pain in the region of the umbilicus, became faint and fell to the ground. Collapse developed, the temperature becoming subnormal and the pulse small. The abdomen was slightly distended. Above the level of the umbilicus there was acute pain and tenderness; the normal hepatic dulness was replaced by tympanitic resonance. Abdominal respiration was restricted, but not entirely absent. There was no general peritonitis. The expression of the face was typically "abdominal." There was neither vomiting nor nausea. For two years the patient had suffered with constant flatulence, much increased by food. There had never been acute pain, vomiting, nausea, or hematemesis. For two weeks there had been a little "nagging" pain around the umbilicus, which was greatly intensified at a spot an inch above and rather to the right of the median line after taking solid food. On the whole, however, the woman had considered herself in fair health until the occurrence that brought her under observation. She came of a tuberculous family, and on three occasions had had inflammation of the lungs. The signs of perforation of the stomach appearing sufficiently distinct, immediate operation was determined upon. The abdomen was opened by an incision in the median line, extending upward for about three inches from a point just above the umbilicus. A gush of opaque fluid followed the opening of the peritoneal cavity. The exposed surface of the liver was clothed with recent lymph, and the parts about the pyloric region of the stomach were somewhat matted together by fresh adhesions. Careful exploration of the anterior aspect of the stomach having failed to detect any lesion, the abdominal wound was enlarged for another inch and the stomach drawn out and turned upward. There was then found on its posterior surface, about two and one-half inches from the pylorus, a perforation equal in size

to a No. 6 English catheter, surrounded by an area of gristly induration about two inches in diameter, which, diminishing at the edges, finally faded away into the surrounding healthy parts. The extreme right margin of this induration nearly touched the pylorus itself. The small perforation was just made water-tight by a suture including the whole thickness of the walls of the stomach except the mucous edge. The peritoneum on each side of the perforation, greatly thickened and stiff was then brought across by six Lembert sutures, so as to completely cover in the occluded perforation. Another series of sutures, to act as a stay, to reduce the tension on those already introduced, was placed at each end in the long axis of the stomach, extending well into healthy peritoneum. These sutures at the hepatic end passed on to the pylorus. The parts having been gently wiped over with a soft sponge, were returned to the abdomen; the abdominal wound was brought together with silkworm-gut and dressed in the ordinary way. No irrigation was practised and no drainage-tube was used. For four days rectal feeding was practised, plain water being allowed to be taken by the mouth *ad libitum* in small quantities at a time. Two weeks after the operation solid food was being taken in the usual way with relish and comfort. The abdominal sutures were removed on the seventh day. Seven weeks after the operation the patient was dismissed, feeling well and gaining flesh. There was no pain of any kind; the old symptoms of flatulence had entirely gone and showed no sign of recurrence, although the woman had been taking ordinary hospital-food for nearly a week.

Traumatic Rupture of the Jejunum without External Lesion.—WHITE (*British Medical Journal*, No. 1742, p. 1077) has reported the case of a miner, seventeen years old, who had been crushed in the pit and presented a collapsed condition, the pulse at the wrist being almost imperceptible. He lay with the knees drawn up and complained of severe abdominal pain. The abdomen was rigid and board-like, but presented no bruise. The tenderness and rigidity were most marked in the left umbilical and lumbar regions. There was an absence of abdominal respiration and no dulness could be detected. Collapse increased and vomiting of gastric and bilious matters set in. A day after the accident the man passed a normal stool and immediately thereafter died. Upon post-mortem examination no evidence whatever of external injury was discoverable. On opening the abdomen the intestines were found covered with a fibrinous exudation, on removal of which the vessels were seen to be much injected. Just to the left of the spine the small intestine was ruptured at about the middle of the jejunum. The rupture was transverse and involved the whole of the circumference of the bowel with the exception of about one-eighth of an inch at the attachment of the mesentery, which latter was slightly bruised. The bowel itself was only crushed for a distance of about a quarter of an inch on each side of the rent, the edges of which were thickened and edematous. Only about a dram of blood escaped, but the contents of the intestine were extravasated. The other organs were healthy, with the exception of some enlargement of the mesenteric glands and some old pleuritic adhesions. It was learned that the lad had been crushed between a wagon and a prop in such a way that a broad, flat surface was applied dorsally and a moderately sharp ledge anteriorly. The rupture probably occurred from compression of a moderately full coil of intestine between the ledge and the spine.

Post-pneumonic Thyroiditis due to Pneumonia cocci.—LION and BENSAUDE (*Bull. de la Soc. Anat. de Paris*, June, 1894, p. 434) have reported the case of a man, forty-nine years old, previously healthy and without personal or hereditary predisposition, in whom developed a frank attack of pneumonia of rather protracted duration, defervescence taking place slowly, and not being complete before the seventeenth day of the disease. During the week following, the appetite returned and the general condition improved, but on three occasions the temperature reached 100.4°. A day later the patient complained of pain in the neck, and it was observed that there was also swelling and tenderness. The temperature was now found to be 102.9°. Treatment with inunctions of mercurial and belladonna ointment was for a time employed, but in the course of a few days an abscess formed in the left lobe of the thyroid gland, which, after the demonstration by exploratory puncture of the presence of pus containing pneumonia-cocci in pure culture, it became necessary to evacuate.

THERAPEUTIC NOTES.

Cactus Grandiflorus.—SHARP (*The Practitioner*, No. 315, vol. liii, No. 3, p. 160) thus summarizes the salient points of an essay upon *Cactus grandiflorus*:

The literature of *Cactus grandiflorus* is comparatively extensive, but vague, too many properties being ascribed to the drug, and upon too slender evidence, there being no authoritative evidence of a pharmacologic or carefully carried out therapeutic kind. The chemistry is as yet unknown, authorities on this subject not even mentioning the presence of a glucoside or alkaloid; and, so far as can be made out after extensive trials, neither of these bodies could be obtained. The most important agents appear to be a series of resins. The pharmacology is necessarily indefinite, one having to work with rather insoluble resins. These cause contraction of the bloodvessels of a frog, but this is not in the nature of a digitalis-contraction, but is believed to depend on simple acidity. On the heart of the frog the resins have little or no effect, comparisons being made with digitalis in the same animal. The drug itself would appear to be pharmacologically inert, and there is no proof that it shortens diastole, nor in fact that it has any special action on the heart-muscle at all. Therapeutically, *Cactus grandiflorus* cannot be included in our list of cardiac drugs. It is not even a simple stomachic tonic, and, at most, all one can say is that it has some slight diuretic action.

Resorcin for Whooping-cough.—BEDELL (*Indian Medical Record*, vol. vii, No. 3, p. 76) reports four cases of whooping-cough successfully treated by topical applications, twice daily, of a solution of resorcin, one dram to the pint.

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THE PHYSICIAN'S VACATION.

THERE are a number of reasons why the summer vacation must be planned long in advance, and just as many why we should keep well in mind the benefits to be derived from it when properly carried out.

More than in any other profession or calling, the physician, in duty to himself and to his patient, is bound to take a season of rest at least once a year. Like the old-time housewife, his work is never done. If patients do not demand his attention for from sixteen to twenty hours of the twenty-four, he, as none other, is compelled to seize every possible moment for the study of the progress of his science. The result is that in the year he gives, as a rule, far more hours of labor to his work than do other members of the community. The argument for a rest, therefore, is based upon physical, mental, and moral grounds. One reason that we fear will not have quite the general acceptance it deserves is the help given to the younger colleague, who temporarily takes charge of the practice of the elder.

It is growing more common for city physicians to take a summer vacation; but it is not so generally felt that the physician of the village and country should do the same. Yet none can need it more, and there are in his case especial reasons for the practice. It has long been recognized that life in the country is likely to lead to monotony and unprogressiveness. The friction of minds in the cities, and mutual ambitions and rivalries, not to say jealousies, keep mental and professional energy at a high pitch. Country physicians might, therefore, with much advantage, utilize the season of rest and change to form acquaintances and to learn by word of mouth of the work and worth of their distant colleagues. It would be a double benefit if we could have short summer post-graduate special courses of medical study at mountain or seaside resorts, such as the Summer School at Dartmouth, and the Biological School at Wood's Hall, Mass.

Medical congresses should be held at such places, and if, as is too common, they were not rushed through in such stupid and silly haste, they might become the means of greater good to greater numbers than is the case at present. It seems to be a growing feeling that the sooner a program can be got through with the better, and we have lately attended meetings where members were wheedled and bullied into reading papers by title or in abstract, and in which discussion was shut off, as if the object of the meeting was to open and adjourn like a Jack-in-the-box machine. It is undoubtedly true that, as at present carried on, the good of medical meetings is far more social than scientific. It is, perhaps, true that most medical congresses will continue to result chiefly in that sort of good; but it is certainly not necessary that the distinctively medical side be utterly extinguished in favor of the social.

While awaiting the summer medical school, where should the physician spend his resting season, how long should he stay away, and what should he do?

It goes without saying, that each will answer these questions differently for himself. We only urge that, in view of the modern ease of intercommunication, everyone go far from home—as far, we were about to say, as possible—and remain away as long as he can. If foreign travel is possible (and it is generally more feasible than one at first thinks), by all odds undertake it. Perhaps a little travel, like a little knowledge, may be "a dangerous thing," and one may return to his old habits without the proper lessons learned or the improper conceit unlearned. But it cannot usually fail to broaden the mind somewhat and give us a better opinion of others, to go and visit them in their homes and "see how they do it." Ease of travel has stopped

the formation of languages, dialects, and of patois; it also acts the same way medically. But if not to other countries, at least to other States! Make the change as decided and as distinctive as possible, and, as a rule, it is better to go to a place and stay there—unless, indeed, one travels afoot! Much railway travel in visiting many places is inadvisable.

A physician hardly needs to be advised against seeking the great "resorts" and fashionable hotels. He will naturally seek the company of the hills, the woods, or the seashore, rather than that of people. The advantages of this plan are evident. Nothing so effectually breaks up the monotony and weariness of our laborious life as a temporary leaving of society, the ills and worries of ill people, and a quiet communion with Nature—a peaceful "thinking it all over." Singleness and exclusiveness of duty or work is likely to act injuriously upon the mind. Indeed, every physician should have some absolutely non-medical "hobby." Interest, partial or interrupted, in something wholly different from that pursued as professional is a great preserver of mental and moral hygiene. The vacation-time is, of course, especially adapted to such pursuits. Many, and certainly no fault is to be found with such, will prefer hunting, camp-life, a bicycle-tour, or a tramp over mountain-ranges. Even then the peculiar interests of his profession will not wholly escape him as he mournfully thinks what hygienic evils deforestation and pollution of streams are preparing for those who come after us.

But the world is getting pretty well filled, and society is not entirely to be escaped. In hotels the physician will get his melancholy lesson of how far we are from medical civilization by observing the certainty with which quacks and patent medicines and cure-alls, private and public, are recommended by otherwise sensible people. In some New England village he will, perhaps, find the best minister lauding and working with the drunk-curers, permitting them the use of his church, and signing testimonials of nostrums. He may also hear the confession of the best physician that not to consult with the wretchedest quacks would soon ruin his little and precarious practice. The people still believe in medical magic and miracle-mongering, and that ignorance is a better preparation for the medical man than education.

But, wherever one goes, he will return to his round of duties the better for the rest, and determined to repeat the lesson each year. The mind will have been refreshed and quickened, life will been seen in new lights and by new insights, and the doctor will be better able to meet the demands made upon him by his profession and by his patients. One will do more and better professional work in eleven or ten months, with one or two months of rest, than in twelve without a vacation.

"THE ATTACK ON THE BUSINESS INTERESTS OF THE"—NEW YORK POLICE.

CERTAIN straight-laced, half-bore, narrow-gauge, humpbacked, Pharisaical, and otherwise generally-back-number Miss Nancies, in the city of New York, actuated by malice and envy, and in the hope of damaging the "business interests" of the guardians of the peace of that city, have, as our readers are aware, unwarrantably "attacked the business-methods" of the blue-coated gentlemen in question, and have latterly gone so far in their career of reckless wickedness as actually to prove the truth of their charges. These fanatical New York shriekers should be severely rebuked. It is quite evident—indeed "the logic of circumstances" declares—that their only object is to advance the rival interests of the *New York Herald*. As indisputable proof of this we refer to numerous editorial articles in the *Herald* approving the course of DR. PARKHURST, and refusing to credit the repeated affirmations of the Police Commissioners that he was an impracticable crank.

As a matter of "abstract ethics," it may be wrong to levy blackmail upon gamblers, crooks, and the keepers of disreputable houses; and perhaps a strict stickler for obsolete codes might censure the taking of bribes from "green-goods" operators in return for aid and comfort given to these estimable and enterprising manufacturers in the pursuit of their business. Upon this phase of the question we carefully abstain from expressing any opinion. But, as is well known, abstract ethics should not be applied to practical questions. To do so is to be illiberal, and to show that one does not appreciate the inevitable distinctions between profession and practice, between fine words and coarse actions.

It is true, moreover, that the business enterprises referred to are against the law, and that the police being sworn to obey and uphold the law, their promotion of and participation in illegal practices might seem to the half-bore Pharisees to savor of a betrayal of trust. But such a view is very narrow

and superficial. The laws in question are quite ancient, and we live in a modern era. At the time these statutes were passed there was no Elevated railroad, no Broadway cable, no Bowery tough, no Brooklyn bridge, no boodle alderman, no Riverside drive, no Pantata; and Tammany was in its infancy. The changes incident to the progress of the last —— years, the marvellous advances in arts and sciences, the widespread diffusion of education, and the general increase of political activity render the great metropolis of 1894, with its two million inhabitants, a very different place from the sleepy village of PETER STUYVESANT, or even the large city of the days before the war. It would therefore be manifestly absurd to require of the helmeted and club-wielding legions of the present Commissioners that scrupulous obedience to rule by which CHIEF CONSTABLE HAYS made his stovepipe-hatted force a terror to the law-breaker, a bulwark to the citizen; or to insist upon a literal observance of laws and statutes passed with regard only to the welfare of the peaceful and the law-abiding. Because the Legislature may have failed in its duty and neglected or refused to remove from the statute-book of the Empire State the illiberal legislation of a past age, the Police Captains should not therefore be hindered in their endeavors to promote the era of fraternity and good-will, without regard to artificial class-distinctions.

If one citizen chooses to be a merchant, another to be a banker, and another to be a confidence-man, why is not the last named as much entitled to police protection as the other two? This is a land of freedom and equal rights! And if the confidence-man chooses to pay the police officer for favors rendered, whose affair is it but theirs? And why should not the merchant and the banker, the fruit-peddler and the unfortunate woman, likewise contribute their proper proportion of extra-judicial taxes for the support of the finest police force in the world? The captains and inspectors and wardmen must do their duty regardless alike of the failures of the Legislature and the imperfections of the statute, and if the restrictive law is not repealed, what course is open to them except to violate it?

But there is still another consideration even more potent than those just urged. As an esteemed contemporary has conclusively proved[1]—questions of right and wrong are not so simple as the unsophisticated may imagine. It all depends upon the point of view. Morality is one thing and "business" is another. Morality might condemn the assistance rendered to the green-goods dealers: but business—never! Well, hardly ever. That is, it might be very wrong if it were not well paid for. This fact of payment, as our readers will observe, our contemporary properly insists upon as the crucial distinction. What might be a question for the ethical student, so long as no remuneration passes, becomes purely a matter of business, so soon as pecuniary considerations are involved. Now, the police have not been charged with helping the verdant-stuff merchants *for nothing*. On the contrary, it is admitted by the narrow-gauge Miss Nancies that the officers concerned receive a sum certainly no less than the celebrated fund of *eight thousand dollars per annum* which our contemporary has on a previous occasion referred to. To ask them to forego this revenue for a mere matter of "abstract ethics" would certainly be very unbusinesslike.

If the humpbacked reformers in New York really wish to suppress the green-goods traffic they must adopt a different plan. They must not try to prevent the dealers' circulars and telegrams from being handled by the Post-office, or the places of meeting from being guarded against the Federal authorities by the local police. It is evident that the people want these things or the circulars wouldn't be issued or the meeting-places maintained. If the demand were cut off the trade would cease to be profitable, and would therefore be discontinued. Now the way to cut off the demand is *to educate* the people. As is well-known, honesty and education are synonyms; witness the Keystone Bank, the Panama Canal, etc., etc. Educate the people, and in a million years or so the green-goods traffic will die a natural death. Meanwhile we should severely frown upon the miserable attempt, solely undertaken for the benefit of the *New York Herald*, to injure the business interests of the New York police.

[1] "The right or wrong of many things depends upon the standpoint from which they are viewed. It makes quite a difference whether one views Chicago from the top of the Auditorium or from the Chicago River. Advertisements present a different aspect to one who looks upon them from a purely business standpoint than they do to the ethical student."

"It is not good surgery to put a plaster over a pus-discharging sore, even though this were effective in preventing the pus from being seen by the patient or his friends. Good surgery cuts down, finds the origin of the pus, and removes the dead bone, granulation-tissue, tumor, etc., which produces the pus. So with the whole list of objectionable advertisements in medical journals. Let us go to their sources and remove these. Create such a professional life as will render these advertisements unprofitable, and the disease will be cured. All else is simply an unscientific method of operation."

EDITORIAL COMMENTS.

The Priority Executioner.—The history of science is filled with records of the discovery of some truth by two or more minds independently of each other. Thus, to take two illustrations known of all, Wallace and Darwin, each without the knowledge of the other's work, discovered the biologic law that now passes under the name of Darwinism, and Helmholtz and Mayer enunciated the doctrine of the conservation of force in the same way. Wise men delight to honor the memory of Wallace and of Helmholtz for the *originality* of the discoveries, and give only a little more honor to the men who first put them on record. Good men also delight in the calm dignity of the *later* discoverer who gladly joined in the award of *priority* to the *earlier* rival. How fatuous would have been the addleheadedness of the later discoverer if he had quarrelled with the verdict and ceaselessly vaunted his own honor!

But there is yet another possibility—the much-protesting third person who himself has discovered nothing, and who devotes his energies to croaking and pooh-poohing and preaching that no other fellow did discover anything. The burden of his lamentation is that there is nothing new under the sun, and least of all is this particular thing new. Moreover, if it were new it is not true. "Go to; let us show up this fraud," is his ever-renewed text. This is the priority-executioner, a species of literary protestant who adds much to the pleasure of the readers of medical and other journals One wonders, in reading his writings, why, if neither new nor true, the matter is considered by him of such importance as to arouse his criticism, and if to nobody else is due the honor, why he is so anxious that this nobody shall have it. One's amused interest is also heightened by noting that the worthless new thing had been used by the critic before and ever since the silly would-be-discoverer was in his swaddling-clothes. One more than suspects the motive of the priority-killer is not quite purely impersonal or genuinely scientific. Lameness of logic and over-much protestation seem to lead to the conclusion. But when the silly would-be-discoverer does not care a blue bean whether he made his "discovery" first or not first, caring only if there be anything in it of use to the world, then are the exorcisms of the paralyzer most vain and his gesticulations painfully ludicrous.

The Abuse of the Reprint.—It is a courteous and commendable custom for an author who has written an article of real value to send reprints thereof to libraries for reference, to his friends for preservation, and to those pursuing the same line of investigation, who might not otherwise become so soon acquainted with his researches. When, however, the reprint is used merely to advertise the fact that the writer is peculiarly skilful in a certain specialty it is less commendable; and when it is used to advertise Messrs. Enterprise and Paywell's Panacea, or some similar substance, it becomes anything but commendable. These thoughts are suggested by the receipt of a pamphlet, reprinted from a journal published in a neighboring city, and bearing the title "Functional ———," by X. Y. Z., M.D., Professor of ——— in the ———, etc., which publication although ostensibly coming to us from the author, is quite evidently circulated as an advertisement by, and at the expense of, the firm whose "trade-mark" product is therein recommended (no doubt, honestly) as a sovereign remedy for the affection in question. Apart from all questions of propriety, men who permit their names thus to be misused are very shortsighted. Their advice, however unjustly, comes to be looked upon with suspicion, as not wholly scientific and disinterested; and their reputation becomes upon a par with that of the "advance-agents" of theatrical notorieties—an honorable reputation when one does not pretend to be other than an advance-agent. The advertising-reprint and the reading-notice are twin growths of the same poisonous root, and should be utterly condemned by thinking, self-respecting physicians.

What is the Duty of the State and of Medicine as regards the Congenital Idiot, the Hopelessly Insane, etc., is a question that presses more and more upon our attention. Some two thousand years ago Plato praised the physician who should refuse to lengthen their lives. In a recent paper read before the University Extension Classes at Oxford, England, our esteemed colleague, Dr. Billings, has also asked why we should expend time and money to prolong these lives. Dr. Billings hazards no answer to the question, but its mere asking implies that economically at least there is but one answer. But the economic aspect is by no means the only one. Leaving aside sentiment and religion, we may consider it simply scientifically. The idiot and the insane may be considered as scientific problems. However impossible the solution just now, the presence of these problems, the existence of the beings themselves, keeps before the mind the everlasting interrogation. We would only put the problem out of sight, not answer it, by killing the problem-asker. The inquiry into the etiology would be stopped at once by the *petitio principii* of the premise that the cause of idiocy is indiscoverable. Killing the questioner would be a convenient but somewhat unsatisfactory way of settling a good many bothersome questions. Every effect must have its adequate cause, and the discovery of causes is the duty and work of the scientist, whether physical or medical.

The Greatest Engineering Undertaking of To-day is at once an economic and a sanitary crime. Millions of dollars are being expended to make the Mississippi River a huge open sewer, and to add the filth of a great city to the combined filth of a hundred lesser cities. As each adds its share the water for the use of those further down-stream is more dangerously contaminated and polluted. Economically alone, this waste of nitrogenous compounds is appalling; but, hygienically, what an outrage, not only against future generations, but against the present generation! Vast sums of money are expended to waste a valuable product that could be utilized on the almost limitless prairies about Chicago, and by the waste the health of millions and of a nation is not only imperilled, but certainly harmed. Nothing could speak more eloquently of the need of a strong governmental organization which should legislate upon and control all such undertakings.

The Water-supply of Philadelphia.—As has been frequently shown in these columns, there is but one right way to improve the water-supply of Philadelphia, namely, the plan first advocated by Dr. Henry Leffmann—the erection and maintenance of an adequate filtration-plant. The source is a secondary matter. If filtration shall fail, or if the Delaware and Schuylkill should run dry, the building of aqueducts may be considered. Until such a contingency arises there should be but one question before the municipal authorities, namely, the best and quickest way of building the necessary filtration-basins. We suggest the appointment of a commission of experts selected with the coöperation of the College of Physicians (as the senior medical body of the Commonwealth) to act in conjunction with the Department of Public Works.

American Medical Teaching.—The physicians of America owe an acknowledgment to Prof. Dr. Max Schueller, of Berlin, for his graceful but candid defence of their attainments and teaching methods against the censure of a superficial but not wilfully unjust observer (*Der Aerztliche Praktiker*, August 9, 1894, p. 878). Prof. Schueller points out the vast extent of American territory, the scattered population, the varying conditions, social and climatic, in order to show that no generalization can properly include all American physicians and schools; and, while admitting the defects that American critics themselves animadvert upon, pays a just tribute to the advanced standing of our best colleges and our representative teachers and practising physicians.

REVIEWS.

A MANUAL OF THERAPEUTICS. By A. A. STEVENS, A.M., M.D., Lecturer on Terminology and Instructor in Physical Diagnosis in the University of Pennsylvania; Demonstrator of Pathology in the Woman's Medical College, Philadelphia; Physician to St. Mary's Hospital and to the Southeastern Dispensary; Pathologist to St. Agnes' Hospital. Philadelphia: W. B. Saunders, 1894.

WE regret that we can give this book only faint praise. The author has accomplished his purpose, and perhaps should not be judged by a more exacting standard. But in therapeutics "a little knowledge is a dangerous thing." It is precisely the student who needs an "introduction to the subject" for whom the best and most expository works should be written. This is not such an introduction, but a condensation which can be useful only to those who have least occasion for it.

THE BRISTOL MEDICAL SCHOOL. (Reprinted with additions from the *Bristol Medico-Chirurgical Journal*, 1892, and presented to the members of the British Medical Association visiting Bristol at their Annual Meeting, 1894.) Bristol: J. W. Arrowsmith.

THIS little brochure is chiefly constituted of a record of "The Early History of the Bristol Medical School," from its organization in 1832 up to the formal opening of a new wing of University College in 1892, by Sir Andrew Clark, prepared by Mr. Augustin Prichard, Consulting Surgeon to the Bristol Royal Infirmary. It is neatly illustrated by sketches and photographs, and contains brief biographic notes of the early members of the faculty.

CORRESPONDENCE.

COW-POX (?).

To the Editor of THE MEDICAL NEWS,

SIR: We are just now having an epidemic of a skin-disease that I take to be cow-pox. The initial lesion in every case so far has been on the hands, and with a single exception it has only appeared among milkers. This case occurred in a young miner who handles his mother's cow, though he never milks. The cows in the town have small blebs on their udders, and one or two horses that have been kept in the same stalls with cattle present very suspicious-looking sores.

The first lesion noticed in my cases is a dark-red spot, which in the course of a week becomes purplish, then enlarges to the size of a pea. The skin puffs up until it looks like an inflamed wart; then it slowly fills with lymph and breaks down, leaving a small sore the size of a silver three-cent piece—often smaller than this. About the eighteenth or twentieth day after the appearance of the initial lesion a rash breaks out, looking like urticaria, and covers the hands and face; in one case it covered the chest and thighs, and in another the hands and feet only. The original sore is never painful and never itches, but the rash is both painful and itching; in fact, the patients have to cover with cloths the parts the seat of the rash, to prevent scratching off the skin.

The rash does not become sore, but slowly disappears, leaving no traces of skin-inflammation.

As for treatment, at first not finding any account of this disease in any of my books, I used the usual treatment of skin-inflammations, but knowing the power of menthol to allay itching, I tried it in the following combination, and found it successful, fully controlling the itching—in fact, giving complete relief:

R.—Menthol. . . . . ʒj.
Acid. carbolic. . . . . ʒiss.
Olei olivæ . . . . q. s. fʒiv.—M.
Sig.—Apply to the rash when it itches.

This application shortens the duration of the rash. My first cases lasted about two weeks; since I have been using this combination the usual time is about five days.

Yours very truly,

FRANCIS W. HARRELL,
Surgeon to Seattle Coal and Iron Co.

GILMAN, WASH., August 23, 1894.

THE INTRA-UTERINE APPLICATION OF HYDROGEN DIOXID.

To the Editor of THE MEDICAL NEWS,

SIR: I trust that you will extend a word of caution in regard to the intra-uterine application of hydrogen dioxid after abortion, etc. This matter is again called to my mind after reading the article by Dr. W. D. Jones, page 242 of THE MEDICAL NEWS, of September 1, 1894. The Doctor there states that he "irrigated the uterus with hydrogen dioxid," after having evacuated it in a case of uncontrollable vomiting of pregnancy. How much this may have had to do with the fatal issue I do not

presume to say; but there are undoubtedly two great dangers incurred by such a use of hydrogen dioxid, *i. e.*, the entrance of evolved gas (along with septic fluids if present) into open uterine sinuses, and the entrance into the peritoneal cavity by the Fallopian tubes of the same materials. It is difficult to conceive of a more certain method of producing gaseous venous embolism than by the procedure under consideration, not to speak of the additional dangers of forcing septic material into open bloodvessels and the peritoneal cavity.

Respectfully yours,

A. J. Comstock.

Ventura, Cal.

NEWS ITEMS.

The Southern Surgical and Gynecological Association will hold its seventh annual session at Charleston, November 13, 14, and 15. The meeting promises to be the most successful in the history of the organization. Papers will be presented by the leading surgeons and gynecologists of the South. The medical profession is cordially invited to attend. Dr. Cornelius Kollock, of Cheraw, S. C., is President, and Dr. W. E. B. Davis, of Birmingham, Ala., Secretary.

Dr. Beaven Rake, Government Surgeon and Director of the Leper Hospital at Trinidad, and one of the greatest authorities on leprosy, died on August 24th, from some form of fever, at the age of thirty-six years.

Dr. Jaromir Mundy, a distinguished humanitarian, died at Vienna on August 23d, at the age of seventy-four years.

Books and Pamphlets Received.

Society of the Lying-in Hospital of the City of New York. Medical Report, 1893. New York: Martin B. Brown, Printer and Stationer, 1894.

On Guaiacol Applied Externally as an Antipyretic. By Julius Friedenwald, A.B., M.D., and H. H. Hayden, M.D. Reprinted from the New York Medical Journal, 1894.

The Diagnostic Value of Ehrlich's Diazo-Reaction. By Charles L. Greene, M.D. Reprinted from the Journal of the American Medical Association, 1894.

Subvolution. A New Pterygium Operation. By Boerne Bettman, M.D. Reprinted from the Journal of the American Medical Association, 1894.

Ripening of Immature Cataracts by Direct Trituration. By Boerne Bettman, M.D. Reprinted from the Journal of the American Medical Association, 1893.

The Relation Between the Eyes and Disease of the Female Genital Organs. By Boerne Bettman, M.D. Reprinted from the American Journal of Obstetrics, 1893.

Ueber den Einfluss des Ichthyols auf den Stoffwechsel. Von Dr. Phil. O. Helmers. Berlin: Druck von Georg Reimer, 1894.

Ueber Ichthyolsuppositorien bei der Behandlung der Prostatitis. Von Dr. A. Freudenberg, in Berlin. Sonder-Abdruck aus dem Centralblatt für klinische Medicin, 1893, No. 26.

A contribution to the Arrangement and Functions of the Cells of the Cervical Spinal Cord, to which is appended a Note on Central Changes secondary to Long-continued Disuse of an Extremity. By Joseph Collins, M.D. Reprinted from the New York Medical Journal, 1894.

Hemorrhagic Typhoid Fever; Treatment, and a Review of Seventeen Cases. By Roland G. Curtin, M.D. Reprinted from the Philadelphia Hospital Reports, 1892.

Clinical Teaching and Clinical Teachers in the Philadelphia Hospital. By Roland G. Curtin, M.D. Reprinted from the Philadelphia Hospital Reports, 1892.

Some Observations on Influenzal Neuritis. By Edward W. Watson, M.D. Reprinted from the Transactions of the Philadelphia County Medical Society, 1894.

A Brief Study of Some Ancient Epidemics and their Relation to Influenza: With Notes on the Epidemic of 1893-94, and Recent Methods of Treatment. By Roland G. Curtin, M.D., and Edward W. Watson, M.D. Reprinted from the Transactions of the Philadelphia County Medical Society, 1894.

The Action of Influenza Poison on the Heart, and a Study of Influenzal Angina Pectoris. By Roland G. Curtin, M.D., and Edward W. Watson, M.D. Reprinted from the International Medical Magazine, 1893.

Clinical Manual for the Study of Diseases of the Throat. By James Walker Downie, M.B. New York: Macmillan & Co., 1894.

U. S. Department of Agriculture. Division of Microscopy. Food Products. I. Twelve Edible Mushrooms of the United States, with Directions for their Identification and their Preparation as Food. By Thomas Taylor, M.D. Reprinted by Authority of the Secretary of Agriculture, with an Appendix.

Essentials of Practice of Pharmacy. Arranged in the Form of Questions and Answers. Prepared Especially for Pharmaceutical Students. (Second edition, revised.) By Lucius E. Sayre, Ph.G. Philadelphia: W. B. Saunders & Co., 1894.

Myxedema, Acquired and Congenital, and the Use of the Thyroid Extract. By George W. Crary, M.D. Reprinted from the American Journal of the Medical Sciences, 1894.

The Spectacle Treatment of Hypermetropia. By Boerne Bettman, M.D. Reprinted from the North American Practitioner.

So-called Spontaneous Combustion, or Increased Combustibility of the Human Body, with Experiments. By Adrian Hava, M.D. Reprinted from the New Orleans Medical Journal, 1894.

Reports. Friends' Asylum for the Insane. Philadelphia, 1894.

Société des Ambulances Urbaines de Bordeaux. Comptes-rendus des Deux Premières Années de Fonctionnement (1890–91–92). Bordeaux: Imprimerie G. Gounouilhou, 1893.

Opinions of the Press on "A Bill to Establish a Bureau of Public Health within the Department of the Interior of the United States." Prepared by the National Quarantine Committee of the New York Academy of Medicine. New York: John J. O'Brien & Son, 1894.

A Contribution to the Study of the Physiological Actions of Spartein. By David Cerna, M.D., Ph.D. Reprinted from the American Medico-Surgical Bulletin, 1894.

Surgical Shock. By Charles P. Noble, M.D. Reprinted from the Annals of Gynecology and Pediatry, 1894.

Procidentia Uteri. By Charles P. Noble, M.D. Pamphlet. Read before the Obstetrical Society of Philadelphia, January 4, 1894.

Profuse Menstruation. By Charles P. Noble, M.D. Reprinted from the Annals of Gynecology and Pediatry, 1894.

The Perfect Needle-Holder. By Charles P. Noble, M.D. Reprinted from the Annals of Gynecology and Pediatry, 1894.

A New Uterine Curretting Forceps. By Charles P. Noble, M.D. Reprinted from the Annals of Gynecology and Pediatry, 1894.

Acute Puerperal Cellulitis and True Pelvic Abscess. By Charles P. Noble, M.D. Reprinted from the American Journal of Obstetrics and Diseases of Women and Children, 1894.

A New Method of Examining the Kidney, Especially for Stone. By Charles P. Noble, M.D. Reprinted from the Transactions of the Philadelphia County Medical Society, 1894.

A Post-Graduate Lecture on Intra-Cranial Tumors. By James Taylor, M.A., M.D. Edin., M.R.C.P. Lond. Reprinted from the Lancet, 1894.

Pathological Notes on Two Pedunculated Tumors. By Ludvig Hektoen, M.D. Reprinted from the Journal of Pathology and Bacteriology, 1893.

A Specimen of Four Healed, Ascending, Ileal Invaginations, Symmetrical and Equidistant. By Ludvig Hektoen, M.D. Reprinted from the International Medical Magazine, 1893.

Unusual Case of Gunshot Wound of the Brain. By J. E. Tefft, M.D. Reprinted from the Medical Record, 1894.

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ORIGINAL ARTICLES.

FORTY CASES OF GUNSHOT WOUNDS.

BY PHILIP MILLS JONES, M.D.,
OF SAN FRANCISCO, CAL.;
LATE SURGEON-GENERAL, ARMY OF HONDURAS, C. A.; ASSISTANT TO THE CHAIR OF OTOLOGY, SAN FRANCISCO POLYCLINIC.

THE following cases of gunshot wounds (except Cases XV, XXXVII, XXXVIII, and XXXIX), were placed under my care twenty-four hours after a battle, during a recent revolution in Honduras, and while I was Surgeon-General of that country's army. From the time of the battle until my advent the cases had received no professional attention, and as retrograde changes are so largely facilitated by such fierce tropical heat as is there found, the deplorable condition of many of the wounded can hardly be imagined.

With the exceptions noted, the wounded were all in a building that had been assigned for hospital-purposes, and a brief description of which will not be out of place. It was an old "adobe" of two rooms, each twenty by twenty-five feet, and had been cleared out for the reception of the wounded men. Each room had three large double doors, no windows, a dirt floor, and whitewashed walls—that is, the walls had once been whitened, but it was many years before. The beds were made of raw-hide, stretched on a frame, and supported by posts at the four corners, and the bedding consisted of one blanket per man, except in the case of the Americans, and for them had been provided canvas beds and cotton sheets.

The medical and surgical armamentarium consisted of one operating-case, containing a fairly good assortment of instruments, chloroform, carbolic acid, mercuric chlorid, iodoform, morphin, and unbleached muslin. The muslin furnished lint, pads, "sponges," bandages, "drainage-tubes," and a rough sort of extension-apparatus. The dressings used were made by ravelling out the muslin, which was then dusted with iodoform, in some cases having been previously soaked in 5 per cent. carbolic-acid solution.

This report is submitted, not because of any originality in treatment that might possess intrinsic scientific value, but rather because the cases are many of them interesting in themselves, and because the unusual and unfavorable surroundings furnish added interest, as well as, perhaps, some indication of possible results under most discouraging circumstances. A raw-hide bed is better than the ground, and an adobe house is better than none at all—just as a shirt, a pair of trousers, and a blanket, though not quite so desirable as clean bedclothes and a clean nightshirt, are still better than nothing as covering for the patient.

The daily articles of diet were beef, beans, cheese, and a hard, dry corn-bread; but this food, with the exception of the beef, was all that they had been accustomed to. The beef was a luxury.

In most of the uncomplicated cases the path of the bullet was swabbed out with a 50 per cent. solution of carbolic acid, as it was found that this method of treatment induced a more rapid and satisfactory healing.

The cases are divided into wounds of the head (5), of the upper extremity (9), of the lower extremity (22), and of the trunk (4), and special attention is called to Cases I, III, VI, VIII, X, XXII, XXXV and XXXVI.

WOUNDS OF THE HEAD.

I. A. C. was an American, thirty-two years old. The bullet (probably from a Winchester thirty-eight caliber rifle) had entered half an inch to the right of the median line, and two and a half inches above the supra-orbital arch. The hair was shaved, and under chloroform-anesthesia a semicircular incision was made, including the upper margin of the wound, disclosing a ragged perforation of both tables. The bullet was found, in company with several spicula of bone, three-quarters of an inch below the surface of the cerebrum. These were removed after the wound had been enlarged slightly with forceps. All ragged edges were carefully trimmed away, and the wound was irrigated gently with warm water. About one-and-a-half fluidounces of cerebral matter escaped during the operation. The wound was carefully closed, and a silk-thread drain left in, which was removed on the third day. The patient rallied, and did well until the fourteenth day, when he was allowed to go out for a walk. He immediately got drunk, and lay in the hot sunshine all day. He was found and brought back in the evening, delirious, the temperature being 103°, and the pulse-rate 135. These conditions persisted until the seventeenth day. The wound was reopened, three drams of pus evacuated, and drainage reëstablished. The unfavorable symptoms were at once relieved, and the man went on to good recovery.

II. C. N., an Indian, was thirty-eight years old. A thirty-eight caliber Winchester, or revolver,

bullet, coming from above downward, had struck first about the nasal eminence, going from right to left, and had finally comminuted all the bones of the orbit, turning the eye upward upon the forehead. When first seen panophthalmitis and septic meningitis were well advanced, and nothing availed to save the life of the patient.

III. J. M. L. was an Indian, twenty-four years old. A small bullet entered at the articulation of the superior maxilla and the malar bone, on the right side, and passing backward and outward inside the zygoma and ramus of the jaw, and immediately below the external auditory meatus, made its exit through the mastoid portion of the temporal bone, which it finely comminuted. In cleaning the wound thirty-eight small pieces of bone, six pieces of lead, and sixty-four large maggots were removed. Frequent irrigation with a 1 : 3000 mercuric-chlorid solution kept the canal comparatively clean, and the case went on to good recovery in about four weeks, leaving, of course, resultant loss of vision and hearing, together with facial paralysis on the right side.

IV. J. B., an Indian, was thirty years of age, whose wounds were rather eccentric, and were made by a small bullet. The man must have had his mouth open when shot, for the ball had passed horizontally through both cheeks without injury to the teeth. The two small holes healed rapidly.

V. J. M. M. was an Irish-American, thirty-five years old. A bullet, probably from a Winchester rifle, passing from before backward horizontally, and a little above the temporal ridge, had gouged out about one-and-a-half inches of bone, splintering both tables, but affecting the inner more than the outer table. The wound was in a very bad condition, and during the removal of the bone-splinters, gravel, dirt, etc., a large amount of brain-substance was lost—probably two or three ounces or more. The patient never fully rallied, and died on the third day.

Of the five cases, one was very simple, and is mentioned merely as a curiosity. Of the remaining four, all serious, two recovered, giving 50 per cent. mortality.

WOUNDS OF THE UPPER EXTREMITY.

VI. E. H., an Indian, was twenty-one years old. In this case, as in many of the others, the position of the man at the time of receiving the injury is indicated quite conclusively by the nature of the wound or wounds. This soldier must have been standing with his left arm extended along the barrel of his gun, presumably aiming the weapon in the direction from which the bullets were coming, for a ball, probably from a Winchester rifle, had torn away both phalanges of the left thumb, and entered the arm just above the insertion of the deltoid, and about three-and-a-half inches below the shoulder-joint. There was no point of exit. Extending the arm and placing it in the position suggested as probable, a probe was introduced, and with ease passed directly into the thorax, the bullet having entered between the first and second ribs, passing in front of the shoulder-joint. Amputation of the thumb was completed, and expectant treatment decided upon for the more serious injury. On the third day pyo-pneumothorax was quite evident, and expectoration of almost pure pus commenced, the temperature ranging from 99° to 102°. This condition was maintained for about two weeks, when improvement began and continued until the fourth week, when the man was discharged.

VII. A. N., an Indian, was twenty-two years old. In this case the position occupied at the time of the injury was, probably, about the same as that of E. H., Case VI, with the arm extended, but the bullet had a much lower velocity, and did little damage. The point of entrance was three-and-three-quarter inches below the shoulder-joint; the bullet had passed in front of the joint, and was found in the pectoralis muscle, over the third rib. Rapid, uncomplicated recovery followed removal.

VIII. C. M. was thirty years old. The amount of injury in this case indicated a large bullet and a fairly high velocity—conditions furnished by the Remington (modello Argentino) rifles, many of which arms were in use. The position occupied was probably very similar to that in Cases VI and VII.

The ball entered the forearm posteriorly four inches above the wrist-joint, passing out anteriorly about three inches below the elbow, splintering and denuding both bones; it then entered the arm five inches below the shoulder-joint on its outer anterior aspect, passed over and behind the shoulder, and was removed from the trapezius, just over the spine of the scapula. The forearm was resected, but the result was most unsatisfactory, and on the thirteenth day the arm was amputated in the middle third. Satisfactory recovery followed.

IX. H. C., an Indian, was twenty-six years old. The wound in this case seemed to indicate a position similar to that occupied by Cases VI, VII, and VIII, for the bullet, a small one, probably from a Winchester rifle, entered the left arm about six inches below the shoulder-joint, passed in front of it, and was found embedded in the pectoralis muscle three inches to left of the median line and over the sixth rib. A rapid and satisfactory recovery followed extraction of the bullet.

X. Y. C., an Indian, twenty-two years old, presented an exceedingly interesting condition. In the right forearm, posteriorly and three inches above the wrist-joint, was the point of entrance of a bullet, apparently of thirty-eight or forty-four caliber. There was no wound of exit, and the arm exhibited a condition somewhat alarming. The forearm and lower third of the arm were greatly swollen, blackened, and covered with clusters of blebs about the size of a grape, and filled with purple-black, slightly viscid, ill-smelling fluid. There was a sharp line of demarcation about midway between the elbow-joint and the shoulder-joint, and the following measurements were taken:

Circumference of forearm, largest	16 inches
" " arm, below line of demarcation	18 "
" " " above " "	9 "

The temperature was 101°, the pulse 98, and the arm was the seat of most intense pain. A diagnosis

of gangrene seemed unquestionable, and immediate amputation was urged by the junior surgeon, but I determined to try a less radical treatment. Longitudinal and transverse incisions, from one-eighth to one-quarter inch deep, and one-half inch apart, were made from the line of demarcation to the wrist, resulting in very free bleeding and almost instant relief from the excessive tension and pain. About two and a half or three pints of blood and bloody serum escaped. The arm was covered with a loose, wet dressing, and the incisions repeated daily for three days. By the fourth day the swelling had almost disappeared, the size of the arm was nearly normal, and the elbow-joint was movable, though movement caused considerable pain. On the sixth day the position of the bullet was made out about three inches above the elbow posteriorly, but the missile was not removed until two months later. The man left the hospital on the twelfth day, at which time the entrance-wound was rapidly healing. He was seen seven months afterward, and reported perfectly well.

XI. L. S., an Indian, twenty-four years old, had been wounded in the right wrist, a large bullet having entered on the dorsal side, passing through, and entirely destroying the wrist-joint. The forearm was at once amputated in the lower third, but the man died. Death was probably the result of a very severe wound of the left thigh.

XII. M. G. was an Indian, thirty-three years old. A small bullet had passed through the soft parts of the left arm, doing no damage. Death was caused by another wound.

XIII. Gen. W., a Mexican, forty-nine years old, suffered from an uncomplicated flesh-wound of the right arm, the ball having passed three inches below the shoulder-joint and to the outer side of the humerus. Rapid recovery ensued.

XIV. M. L. was an Indian, thirty-six years old. A small bullet passed through the soft parts of the left arm, three inches above the elbow-joint and to the outer side of the humerus. Uncomplicated recovery followed.

Of these nine cases of wounds of the upper extremity two were fatal, death probably being caused by other and more severe wounds. In one case resection was tried, but was eventually followed by amputation. In the remaining cases expectant treatment was eminently satisfactory.

WOUNDS OF THE LOWER EXTREMITY.

XV. S. L., an Indian, thirty-seven years old, came under my care forty-eight hours after he had shot himself, with a 38-caliber revolver, in the right foot. The ball entered midway between the extremity of the outer malleolus and the posterior extremity of the os calcis, passed forward and inward, and was found below and between the third and fourth metatarsal bones, from which location it was removed through an incision on the outer side of the foot. Removal and free drainage and irrigation resulted in rapid subsidence of inflammation and speedy recovery.

XVI. J. S. S., an Indian, about thirty years old, was accidentally shot with a Remington rifle. He was sitting on the ground, and the bullet coming from above downward, entered the left thigh seven inches below the anterior superior spine of the ilium, and passed out one-half inch to the left of the anus. He died four hours after being shot. The shaft of the femur and the greater portion of the left innominate bone were finely comminuted.

XVII. S. L. was an Indian, thirty-five years old. A large bullet, probably from a Remington rifle, entered four inches above the left knee-joint posteriorly, passed downward and forward, splintering the femur, tibia, and fibula. Gangrene was well advanced, and high amputation was not successful in saving the man's life.

XVIII. I. L., an Indian, forty-two years old, was also wounded with a large bullet, which had in this case entered two-and-a-half inches below the knee-joint anteriorly, and passed out three inches above the joint posteriorly. Gangrene was already advanced, and amputation in the upper third of the thigh was followed by death in forty-eight hours.

XIX. P. A., a Mexican, twenty-four years old, seemed to be a more promising case. A small bullet—38 caliber—had passed almost horizontally through the right knee-joint, splintering slightly both femora and tibiæ, but when examined there were no symptoms of gangrene. With all the antiseptic precautions possible, the leg was amputated in the middle third of the thigh. Unfortunately, gangrene made its advent on the second day after the operation, and the patient died forty-eight hours later.

XX. J. C. was an Indian, twenty-four years old. A small bullet passed through the right leg, from before backward, two inches below the knee-joint. The tibia was splintered up into the joint. The wound was in bad condition, but probably gangrene had not commenced, and amputation in the lower third of the thigh was followed by a very satisfactory recovery.

XXI. J. M. was an Indian, twenty-six years old, whose wound was the product of a small-caliber bullet which had passed through the left thigh, entering anteriorly three inches above the knee-joint and passing out about one-and-a-half inches lower, posteriorly. The femur was splintered down into the joint. Amputation in the middle third of the thigh was highly successful, and the patient made a good recovery.

XXII. C. J., an Indian, twenty years old, presented an unusually interesting condition. A small bullet had entered the left thigh, three-and-a-half inches above the knee-joint, on its posterior and anterior aspect, taking a course downward, forward, and inward; *i. e.*, toward the knee-joint. Despite a most careful and persistent examination and probing, no bullet could be found. There was very little pain and soreness in and about the joint, which was freely movable; there was no abnormal temperature and practically no inflammation; it was therefore decided to await further developments. The entrance-wound healed rapidly and with very little slough, and the general condition

persisted for three weeks. Only on forced motion of the joint was there any pain, and this steadily decreased. On the twelfth day a small tumor was made out, lying below, behind, and to the inner side of the patella, perfectly movable and about three-quarters of an inch in diameter. On the twenty-third day this was cut down upon and found to be a small piece of bone, apparently chipped from the inner condyle of the femur. The bone was removed, and the wound closed by first intention. The patient was discharged ten days later, with slight stiffness of the knee-joint.

XXIII. C. D. was an Indian, sixteen years old. A small bullet—possibly from a Winchester rifle, 38 caliber—passed through the left thigh from behind forward, entering about seven inches above the knee and lodging in the superficial tissues, anteriorly, two-and-a-half inches below the anterior superior spine. The femur was fractured, and a small piece had been chipped off. This was with some difficulty removed, the leg dressed, and a crude extension-apparatus applied. It was very difficult to keep the leg in good position, but the resultant deformity was not marked—much less than had been anticipated.

XXIV. L. S. was a Mexican, twenty-four years old. A large ball had passed through the left thigh from before backward, seven inches below the great trochanter. There had been great shock and very much hemorrhage, and the patient did not survive an amputation.

XXV. M. G. was a Spaniard, thirty-three years old. The bullet in this case entered the left thigh anteriorly, about six inches above the knee-joint, the point of exit being posterior, two inches above the point of entrance. The femur was fractured, and two large and two small fragments could be found; the distal extremity was split, but not quite into the joint, and amputation was decided against. Three of the bone-fragments were removed; the fourth, being more firmly adherent, was not disturbed; and the leg was fixed as well as it was possible. Sloughing was rather free, but by the end of the third week had begun to decrease, when, unfortunately, the patient died of secondary hemorrhage during my absence.

XXVI. C. G. was an Indian, nineteen years old. A large bullet passing from below upward and inward, commencing at a point about three inches above the inner malleolus of the left leg, had broken and split both bones of the leg, and so lacerated all the soft parts that no relations could be found. Gangrene had commenced and was not checked by amputation in the lower third of the thigh. Death occurred on the third day.

XXVII. A. G. was an Indian, about twenty years old. A bullet, probably of small caliber, entered the right thigh two inches above the knee-joint, on the inner side, and passed through, fracturing the femur and splitting it down into the joint. The point of exit was two inches higher than the point of entrance. Gangrene had already commenced, but amputation in the middle third of the thigh was eminently satisfactory in saving the man's life and leaving a good stump.

XXVIII. A. H. was a Mexican, thirty years old. A large bullet, commencing at a point about four inches above the inner malleolus, somewhat posteriorly, and going upward, tore off the calf of the left leg for about six inches. The wound when first seen was in very bad condition, and considerable sloughing followed. There was less loss of tissue than might have been anticipated, and comparatively little contraction and lameness.

XXIX. A. L., an Indian, twenty-six years old, was very slightly wounded. A small bullet passed through the soft parts of the right thigh, externally to the femur, doing but little damage, and uncomplicated recovery followed.

XXX. R. G. was a Mexican, twenty-four years old. A small bullet had removed the soft parts on the anterior surface of the left thigh, three inches above the knee, to a depth of about three-fourths of an inch; the wound being about four inches long and three inches wide. It was filled rapidly by granulation.

XXXI. G. M. was an Indian, forty-nine years old. A small bullet passed through the soft parts of the left thigh, six inches above the knee, externally to the femur. Uncomplicated recovery followed.

XXXII. R. G. was twenty-four years old. A small bullet, coming from the left, blistered the skin of the penis and passed through the right thigh, entering at a point on its inner anterior aspect, three inches below the symphysis pubis, and passing out in the same horizontal plane, leaving a canal about three-and-a-half inches long. The finger thrust into the canal was found to be in contact with the femoral artery above, which the bullet had just missed. Fortunately, there was but little sloughing, and the wound healed by granulation, very slowly.

XXXIII. J. S. was a Mexican, thirty-eight years old. The bullet had passed from behind forward, through the soft parts of the left thigh, about seven inches above the knee, and externally to the femur. No complications arose to retard a good recovery.

XXXIV. J. M. was an Indian, forty-two years old. A small bullet passed through the soft parts of the right thigh, five inches above the knee-joint, and internally to the femur. Uncomplicated recovery ensued.

XXXV. A. A., an American, thirty-seven years old, presented a number of wounds, and said that they were all made at the same time and by the same bullet, while he was lying on his back on the ground. The ball passed through his left foot, between the third and fourth metatarsal bones, entered the thigh about four inches above the knee, passed upward through the thigh, superficially, for about six inches; it next entered the abdominal wall about two inches above the center of Poupart's ligament, passed upward and inward, and was found at, and removed from, a point about two-and-a-half inches below and to the left of the umbilicus. The man made a very good and rapid recovery.

XXXVI. J. C. was an Indian, thirty-four years old. This case is presented with apologies for the unscientific nature of the treatment. The wound was

a simple one to the soft parts of the right thigh, and attracted no especial attention until the third day, when the right leg became very stiff and sore, which condition progressed rapidly until the diagnosis of tetanus was clear. The Indian companions of the patient brought some twigs and pieces of root of a plant which was by them considered an antidote and cure for snake-bite and lockjaw, and asked that the remedy be tried in this case. A strong infusion was made, and twenty minims injected hypodermatically every three hours. By the time the second injection was made the convulsions were very violent and there was extreme opisthotonos. After the second injection, however, these symptoms did not increase in severity, and by the time of the eighth injection they had commenced to subside. Invariably the injection seemed to relieve the spasms. This treatment was continued for three days, by which time the patient seemed to be rapidly recovering. After the fourth day the case went to a good recovery. There was resultant abscess in both arms from the injections. I did not positively recognize the plant, but it very much resembled the cinchoneæ, and was probably one of that large family.

In these twenty-two cases of wounds of the lower extremity are included three in which gangrene had set in when first seen, and two of which died. In a total of seven deaths four were from injuries to the knee-joint, of which there were seven cases. There were six amputations of the thigh, with three recoveries, and four cases of gangrene with one recovery.

WOUNDS OF THE TRUNK.

XXXVII. J. D., an Indian, twenty-two years old, was seen two hours after being shot with a thirty-eight caliber revolver at short range. Hypodermatic injections of whiskey were given to relieve shock, which was very great. On examination it was found that the bullet had entered one-and-one-half inches to the left of the median line and three inches below the left nipple. Careful introduction of a probe was followed by the escape of a small amount of bloody serum, and the impulse of the heart, beating against the probe, could be distinctly felt. The bullet was found lying superficially on the line of the twelfth dorsal vertebra, and two inches to the left of the median line. It was removed on the third day, leaving a wound that healed rapidly. A drainage-tube was inserted into the entrance-wound to the depth of three-and-one-half inches, and gradually withdrawn as the wound closed from below. Pus was discharged for three weeks. There were no symptoms of pneumothorax, and temperature, pulse, and respiration were normal until the seventh day, when, contrary to instructions, the patient sat up in bed and ate some solid food. Six hours later the temperature was 105°, the pulse 150, and a large amount of pus was discharged from the drainage-tube. These unpleasant symptoms were relieved by calomel and aconite, and the case went on to a good recovery. The bullet probably passed just beneath the apex of the heart, was deflected downward by the bodies of the vertebræ, and so made its exit. Seven months later the man was seen, and was perfectly well.

XXXVIII. M. L., an Indian boy, fourteen years old, was accidentally shot with a thirty-eight caliber revolver at short range, and was seen three hours later. The bullet passed through the left arm in front of the humerus, entered the thorax by passing through the sixth rib, went behind the heart, and entered the right lung. There was double pneumothorax, and the pulse ranged from 114 to 210, the respirations from 34 to 64, and the temperature from 100° to 103°. Death occurred on the fifth day.

XXXIX. S. C. was an Indian boy, twelve years old. The boy was seen two hours after having been shot accidentally with a thirty-two caliber revolver, the bullet striking first a stone wall, from which it glanced and wounded the boy in his right shoulder, passing from behind forward, immediately beneath the clavicle, and, strange to say, doing no damage to any of the important structures in that locality.

XL. J. M. was an Indian, twenty-three years old. A small bullet, nearly spent, entered at a point two inches to the left of the median line over the sixth rib, and was deflected, passing around the thorax, and lodging about three inches to the left of the vertebral column. Rapid recovery followed removal of the bullet.

PAINFUL GASTRIC NEUROSES: THEIR NATURE, SYMPTOMATOLOGY AND ETIOLOGY.

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PAIN in the stomach is always evidence of some disturbance of the sensory innervation of that organ, and the success that attends the endeavor to cure a painful gastric condition will be commensurate with the completeness of the removal of its cause. In perfect health, no sensation whatever is experienced in the stomach from the presence of a reasonable quantity of food therein, nor from the act of digestion. Frequently, however, an overloaded stomach gives discomfort, if not real pain. If the nerves of the stomach are not disturbed by direct or remote irritation, or by disorder of their nutrition from chronic disease or certain forms of toxemia, digestion takes place without sensation. Doubtless many instances of pain in the stomach are of the nature of neuralgias, as the pain is complained of when the stomach is empty as well as when it contains food; and the chemistry of gastric digestion is not infrequently normal while pain is present.

In considering the painful neuroses of the stomach the organic diseases of the organ, such as carcinoma and ulcer, are necessarily left untouched. A good deal of difficulty arises sometimes in distinguishing between the sensory disturbances that are functional and those that are organic in origin, and the most exhaustive means of diagnosis at our command may

have to be brought to bear upon a case in order to reach a satisfactory decision. This is especially true of ulcer and carcinoma, when gastralgia occurs in patients who bear many of the stigmata of one or the other of these diseases. Gastralgia independent of ulcer, and ulcer accompanied by intense pain, are each common in young women, while gastralgia without carcinoma, and carcinoma with pain, are each of frequent occurrence in old people. Particular reference to the pain in hyperchlorhydria is omitted in this connection, as this secretory neurosis is so closely allied to ulcer of the stomach; it is, furthermore, best considered under the head of secretory disturbances.

It is not uncommon, however, to find definite disorder either of secretion or of motion in cases of gastralgia, but it is not always easy to trace a causative connection between these and gastralgia. For instance, a woman under my care who had attacks of severe gastralgia, also presented the condition of gastric anacidity, in which the stomach-contents were certainly non-irritating, as they were persistently subnormal in acidity. Occasionally the motion became hurried, and the stomach was found completely empty two hours after the ordinary mixed meal.

The most severe form of gastric pain is that which we designate essential gastralgia. It is of a paroxysmal nature, occurs most frequently in hysterical women, comes on for the most part independently of the time of eating or of the character of the food, and is accompanied by great nervous perturbation. The duration of the paroxysms of gastralgia varies in different cases and in separate attacks in the same case. Several patients under my care suffered twelve hours in some attacks when not relieved by treatment. There is a noticeable tendency on the part of patients to exaggerate the pain. One of my patients always became extremely excited in describing her attacks, and repeatedly declared she could not live through another paroxysm. This exaggeration is often more marked during the pain, and this patient cried and screamed alternately, while otherwise behaving in an unreasonable manner.

The location of the pain in essential gastralgia is often in the region of the pylorus, which fact sometimes confuses the exclusion of biliary colic in differential diagnosis.

Of the less severe forms of gastric pain, the time of onset, the character, and the location, are of chief importance. Some complain of pain after eating, others of pain an hour before meals, while a proportion of cases have pain at irregular periods. A few cases complain of constant pain in the stomach. One lady, about thirty-five years old, who has been a pronounced neurasthenic for many years, says she never knows what it is to be free from gastric pain. As she is constantly thinking of and crying about herself, one is inclined to think she exaggerates her stomach-trouble, as she does everything connected with herself and her suffering. The gastric chemistry in this case is irregular. At one examination I found it normal, while at the next there was lactic-acid fermentation and subnormal hydrochloric acid. Her stomach was not slow in emptying itself, although constipation was quite persistent. Another case is in the person of a young girl, aged twenty, who has complained of various neuralgias for a year and a half. Upon two direct examinations of her stomach, motion and secretion were found normal, and absorption was good. At the present writing, this girl declares she has constant pain in her stomach, but this is scarcely credible, as she is so prone to suggestion that she will say she has pain in any imaginable part of her body. Nevertheless, she suffers as such neurasthenic creatures do, and her case is a good example of the influence of the psychic state upon gastric sensation. This girl's vitality is low, her nutrition is imperfect, her skin is "muddy," she is constipated, her arteries are tense, the capillary circulation poor, and she is decidedly hyperopic. It is not surprising that these conditions are accompanied by headache and stomach-ache.

Cardialgia is the predominant form of pain in some cases. It may or may not be accompanied by regurgitation or by belching of gas. It is usually associated with a high total acidity of the gastric contents, or it results from hyperesthesia of the sensory filaments about the cardiac opening which renders them painful under the stimulation of normal acidity and intra-gastric pressure. Sometimes spasm of the cardia is accompanied by severe pain. In a woman treated two years ago for gastroptosis with some dilatation and a pronounced gastric catarrh, upon several occasions the cardia contracted tightly around the stomach-tube, and it was necessary to wait until the spasm had subsided before withdrawing the tube. The patient showed evidence of suffering when the contraction took place and put her hand over the lower end of the sternum. She said the pain there was intense for a few moments. This incident suggests that spasm of the cardia may sometimes cause cardialgia. Not only is severe gastralgia sometimes felt in the region of the pylorus, but less severe pain occurs at this point. The same considerations apply here as apply to pain at the cardia, with the exception that in differential diagnosis carcinoma and ulcer are more frequent at the pylorus, and whereas in cardialgia pressure over the region of pain often gives relief, in pain near the pylorus tenderness upon pressure is usually quite noticeable even in the absence of

organic disease The anatomic proximity of the pylorus to the cardia is worth remembering when we consider the comparative remoteness of the areas to which patients refer pain.

As regards the character of gastric pain, it is variously described as shooting, boring, gnawing, burning, or tearing. A dragging, dull, heavy ache is also described by some. Thus it will be seen that abnormal sensations in the stomach assume a variety that accounts for the difficulty many patients experience in describing their peculiar form of discomfort.

Etiology. Neurasthenia exists in many instances without any complaint whatever of the stomach. In another class of neurasthenics intermittent stomach-trouble is present; while in a third class "the *ego* in the cosmos" of the neurasthenic centers in the stomach, and that forms the chief complaint. This is the "neurasthenia gastrica" of some writers. This last class of patients may be divided into those who have pain but normal digestion, and those who have pain with some defect in gastric chemistry or motility. In the first the condition is a simple sensory neurosis; in the latter it is a mixed neurosis with pain. The relation between neurasthenia and gastralgia is one that often involves the question of the etiologic factors underlying the former condition; nevertheless, pain in the stomach is very commonly associated with the symptom-complex that we call neurasthenia, and the relief of the gastric symptoms is often commensurate with the improvement in the general and nervous conditions. For instance, a married woman, aged twenty-five, the mother of two healthy children, presented herself in May, 1893, complaining of pain and distress after eating, although her appetite was enormous. She also had headache, backache, and pain referred to the ovarian region. For years she had been wretched generally, but not sick in bed. Her physician, a homeopath, had faithfully tamponed, supported, and otherwise treated her uterus during all that time, and had thoroughly impressed upon the patient that her trouble all originated in her pelvic organs. At the time of my examination she was thin, pale, weak, nervous, and constipated. Her heart and lungs were normal; the stomach was low but not dilated; the kidneys were in place; the colon was loaded with fecal matter. The uterus was freely movable and in its proper position. There was some leukorrhea. The woman said she never was able to read half an hour without getting a severe headache. Upon refraction she was found simply hyperopic and was fitted with + cyl. 0.75 D, ax. 90°, for each eye. Her urine was mildly acid, clear yellow, with a specific gravity of 1015. No sugar or albumin was present. There was a trace of indican. Volume in 24 hours 1280 c.c., urea 14.080. Her blood registered 35 with plate and 43 with spectroscope. Her stomach showed normal HCl, with an absence of organic acids after a test-meal of lean meat, bread, and water. Gastric motion was somewhat slow; but on the whole digestion was accomplished well, and upon several direct examinations there was found no apparent cause for the gastric pain. This patient was directed to wear her glasses constantly, to flush the colon, to take a cold spinal douche every morning, to adhere to a carefully selected mixed nutritious diet, and she was given large doses of strychnin before meals, with aloin as a laxative. Emulsion asafœtidæ was given in one-ounce doses four times a day. Improvement commenced and steadily progressed until she reported herself in about two months entirely free from gastric pain, and said she never felt better in her life. I have since learned from the patient that she remains well.

It is difficult to draw a sharp line of distinction between neurasthenia and hysteria so far as they bear an etiologic relation to gastralgia. Those cases manifesting intense gastralgia, while apparently in good health, sometimes behave in an excited and unreasonable manner, as is illustrated in the case of a healthy woman who, when attacked by gastralgia, not infrequently spoke unkindly to and slapped her sisters and daughters, while they were endeavoring to give her relief, and afterward said she was sorry for her behavior, but that she did not know what she did or said when in pain. Another woman became so terrified when she felt the first twinge of pain that she occasionally hurried to the office excited and trembling in fear that the pain would become severe.

Locomotor ataxia is the cause of gastric pain in some cases. The pain, to be at all characteristic, comes in the nature of a crisis, and is very severe, but the lesser forms of pain may be present in this disease. The other evidences of the disease may be latent and the diagnosis be thus confused. Other cord-diseases and affections of the spinal column occasionally cause gastralgia.

Chlorosis is sometimes accompanied by gastric pain, and the point of chief importance in such instances is the differentiation between ulcer and simple gastralgia. My associate, Dr. Stockton, was consulted some years ago by a young girl with chlorosis, and during the course of his conversation with the patient he told her to go home and to bed at once, or else she would have another attack of vomiting and would vomit blood. She disregarded the advice, and about twelve hours later a message came that she had vomited a large amount of blood. This girl's chief complaint was of pain after eating with occasional vomiting of very sour contents, and she was the color of white wax.

In chlorosis the conditions are ripe for the onset of various neuralgias, and in many cases the pain in

the stomach is not associated with ulcer or with the hyperchlorhydria that accompanies ulcer. Indeed, chlorosis exists not infrequently with subnormal HCl. Grave anemias following acute diseases, like typhoid fever, are sometimes accompanied by severe pain in the stomach, with low HCl, retarded motion, and some fermentation.

The general malnutrition caused by lithemia, gout, rheumatism, malaria, tuberculosis, syphilis, and renal insufficiency is often associated with painful gastric disturbances of mostly a neurotic character. With my associate, Dr. Stockton, I have observed a number of cases of gastralgia in men that yielded to potassium iodid after resisting other forms of treatment. Dr. Lyman,[1] in a paper entitled "Gastro-enteric Rheumatism," which he read before the Association of American Physicians, June 1, 1894, says the pain so commonly associated with excess of hydrochloric acid and ascribed by many observers to the irritating action of the acid upon the walls of the stomach, is in truth a definite rheumatic gastralgia depending upon irritation of the gastric plexus of nerves by toxins resulting from hepatic and renal insufficiency. Dr. Lyman calls particular attention to the arthritic cases having attacks of gastric pain. My very modest experience in this matter does not lead me to call these cases "gastric rheumatism." Sometimes stomach-trouble with pain may be traced to the excessive use of alcohol, tobacco, coffee, cocain, opium, or to the habit of masturbation.

Finally, we come to consider the most fruitful of all sources of painful gastric neuroses, consisting in the effect of mental fatigue, worry, excitement, and the various sources of reflex irritation upon gastric innervation. Overworked business men who are under a hard strain fail first in appetite and digestion. They begin by feeling weight and distress in the epigastrium after meals, and end by living on milk or broth because they fear solid food will bring the pain they know too well. Financial anxieties or reverses, which keep a man in a state of high nervous tension for a long time, are a fruitful source, not only of gastric disturbance but of many a general breakdown which may never be recovered from even after years of travel and treatment. Then the men who work from eight until six in a close office, and spend every night until two o'clock smoking, drinking, or what not, are finally made aware that a stomach needs rest, oxygen, and good innervation in order to functionate well and painlessly. Women are subject to innumerable disturbing influences in every-day existence: Late hours, late suppers, loss of sleep, continual social dissipation, crosses in love, constant emotional excitement for some, and for others loss of husbands or children, husbands gone wrong, neglectful or abusive, household cares, financial hardships, and other things that harass the nervous system; for shop-girls, long hours, insufficient and improper food, lack of sunshine and fresh air, coupled with discontent—these and many other influences work havoc with the innervation of the stomach and bring about the "American dyspepsia," so called.

Of the reflex disturbances of the stomach arising from derangement of other organs, those that play the most prominent part are eye-strain, uterine or ovarian disorder, and floating kidney. Of rarer occurrence are reflexes from urethral disease, varicocele, or disease of the rectum.

The state of secretion and motion in painful nervous disorders of the stomach varies widely in different cases. In some cases motion, absorption, and gastric chemistry are normal, while in others motion alone may be at fault, or secretion may be abnormal. It is unnecessary to enter here into a close discussion of the possible disorders of motion and secretion that may be coupled with a painful state of the stomach; suffice it to say that the chief object of direct examination of the stomach is to exclude organic disease, and subsequently the tube may be used as a means of treatment.

(To be concluded.)

[1] American Journal of the Medical Sciences, June, 1894.

A REPORT OF THE ULTIMATE RESULTS OBTAINED IN EXPERIMENTAL EYE-TUBERCULOSIS BY TUBERCULIN-TREATMENT AND ANTI-TUBERCULOUS INOCULATION.[1]

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At the last two meetings of the Association I presented rabbits, illustrating the beneficial effects that may result from treatment with tuberculin in experimental eye-tuberculosis and the marked inhibitory action exercised over this type of disease by preventive inoculations. In a morbid process, however, following so irregular a course, and of so relapsing a nature as tuberculosis, time must ever be the crucial test that should be applied to any apparently favorable results obtained, and I therefore report briefly the further results of these experiments.

The curative effects of tuberculin on the eye-lesions, which, as I showed, may go on apparently to absolute disappearance of the tuberculous process in the eye, is in but very rare instances permanent, and a strong tendency to relapse sooner or later becomes apparent. Even after the eyes have remained free from any morbid manifestation for as

[1] Read before the Association of American Physicians, Washington, May, 1894.

long as twelve months, will this tendency to recurrence manifest itself. Little by little, signs of vascular irritation appear in the eye and around the remaining trifling and apparently extinct foci, and these slowly show evidence of renewed activity. The course of the relapse in the great majority of cases, however, seems essentially chronic, and the destructive and inflammatory processes resulting in caseation are less marked than those that occur after the primary inoculation.

The tendency to recurrence after treatment with tuberculin exists, therefore, though to a much less degree, experimentally as clinically, and the extent to which the tuberculous process can be influenced favorably seems to depend upon the degree and character of the irritation induced about the tubercle and the length of time during which this irritation can be maintained as a result of the treatment rather than upon any direct germicidal effect or upon the production of a lasting immunity.

In lupus we note that the manifest and marked good effects of the treatment last only so long as the injections of tuberculin cause, in a varying degree, vascular changes and cellular infiltration about the tuberculous areas, and cease as soon as the remedy is powerless to produce these. In the rabbit's eye this slight irritation can be maintained much longer than in lupus in man, and the result is correspondingly better and more permanent. How powerful a factor in antagonizing the progress of tuberculosis an artificially induced irritation of the surrounding tissues can be is shown by the complete cures that often follow resection of tuberculous joints, even though much of the infectious mass may unavoidably have been left in the joint. It has also been demonstrated clinically, and of late experimentally as well, that in tuberculous peritonitis the traumatism of a celiotomy and the exposure of the serous membrane to the air are capable of producing a reactive irritation which enables the tissues to smother the onward progress of the more chronic bacillary infection, and apparently cures the disease.

In weighing the evidence offered by this study of the effect of tuberculin on the initial tuberculous lesion as it occurs in the rabbit's eye, it should be noted that the eyes of the control-animals are all destroyed, often many months, before relapses begin to occur in the treated ones, and that the relapsing lesions run a very chronic course. This treatment may be said, therefore, to produce a marked and undoubted curative influence upon the disease, but an influence which, though inhibitive in its action for long periods of time, but rarely leads to a permanent cure in the initial lesion. I have not had an opportunity to study the effect upon these relapsed eyes of a renewal of the treatment.

The results of preventive inoculation are much more satisfactory and apparently more enduring. The rabbits which have survived the subcutaneous inoculation of living cultures of the avian tubercle-bacillus of gradually increasing virulence and in graded doses have undoubtedly acquired a certain degree of immunity to subsequent eye-inoculation with the mammalian cultures, which in some animals under my observation has persisted for over a year without the slightest evidence of a relapse. These eyes appear almost normal, little or no evidence of the virulent inoculation remaining, save the corneal scar and slight adhesions of the pupil to the lens. Unfortunately here, as in the case of animals treated with tuberculin, apparent relapses occur, though a study of the changes in the eye does not point so much to a true relapse as to imperfect and only relative protection, the disease from the first merely running a very chronic course. These cases are, however, by no means the rule, and the degree of immunity obtained appears in many instances of long duration. To test the permanence of the apparent immunity, reinoculation was, after six months, practised in the sound eyes of several of the animals. The changes in the eye produced by this followed to some extent the same typical course as in the first instance, and the disease ran a very chronic course, and in one instance aborted entirely, the second eye being restored, as the first had been. This striking result is shown in the photographs of animal A, in which the eyes, both six months and a year after the virulent inoculations, remain apparently normal. This was, however, the only animal in which so good a result was obtained. Other photographs were made from the same rabbits shown here last year, and were taken one year after the test-inoculation. They illustrate admirably the degree and uncertainty of the protection realized, which may be either complete, partial, or entirely lacking.

As I pointed out, the reaction produced in the surrounding tissues by the introduction of the mammalian bacillus into the eye differs greatly in the prepared animals from that observed in the controls. In the controls the slight degree of irritation caused by the traumatism having passed away, but little is to be noted in the eye for ten days or two weeks, when the evidence of a gradually progressive tuberculous process appears and goes on uninterruptedly to more or less complete destruction of all the structures of the eye. In the prepared animals, on the other hand, the introduction of the infectious material into the eye gives rise almost at once to signs of violent and at first steadily increasing inflammatory reaction, which, however, in two or three weeks slowly begins to subside and may finally entirely disappear. The more marked and more immediate this inflammatory reaction, the better the prospect

that the tuberculous process will be ultimately aborted, and that almost complete restoration of the eye will ensue in the animal under observation. Indeed, a very fair estimate of the degree of protection conferred may be made, according to the early appearance and intensity of this primary reaction. Even in cases in which it is slight, the tuberculosis runs a more chronic course than that observed in control-animals, but nevertheless it may ultimately end in complete destruction of the eye. It is evident that a profound impression of some kind has been made upon the defensive resources of the animals by the preventive treatment, for the manner in which they react to the test-inoculations has been manifestly altered. This is in accordance with the observation of Kitasato, who, having succeeded in curing five guinea-pigs out of twenty-five treated by injections of tuberculin, found that cutaneous reinoculation was at once followed by intense local irritation, ending in the separation of a slough, which left behind it a healthy, granulating surface, no systemic infection of the animals resulting.

The introduction of living bacilli would appear necessary to the production of this relative immunity, and the inoculation of merely chemical substances contained in the cultures powerless to produce it, for all attempts which I have made to protect rabbits with sterilized growths of the avian bacillus, whether killed by heat, light, time, or carbolic acid, have proved negative. Curiously, however, in animals which have been prepared by treatment with dead cultures, the peculiar early reaction of the tissues to the virulent inoculation occurs to a certain extent, but the process goes on uninterruptedly to caseation and destruction of all the structures involved. The principle upon which the relative immunity thus obtained rests seems analogous to that which has governed Pasteur in his anti-rabic inoculations—*i. e*, the gradual habituation of the organism to a virus of greater virulence than that of the virus with which the test-inoculation is to be made.

In accordance with this view it may be noted that the occurrence of a tuberculous process that has become arrested does not protect against another and frequently rapidly fatal invasion of the disease, and all attempts at protective treatment with attenuated cultures of less virulence for the animals than those used in the test-inoculations have, as far as I am aware, and many times in my own experience, proved entirely unsuccessful. We find, also, that while the rabbit, which is very much more susceptible to the avian than to the mammalian bacillus, may acquire a certain degree of immunity to the latter by preventive inoculations of the former, the guinea-pig, which can rarely and with great difficulty be killed by the avian microbe, even when enormous doses of these cultures are injected, is in no way protected by this treatment, a fact that I have several times tested experimentally myself.

All attempts at the production of artificial immunity to tuberculosis in animals have hereto resulted in an unbroken record of failures, but recently Grancher and Martin claim to have succeeded in protecting rabbits. and Richet and Héricourt dogs, by preventive inoculations of avian bacilli. Their results show the same danger to the animals' health and life from the preventive treatment, the same uncertainty as to the production of immunity and the degree of production that it affords, as noted in my own experiments on the rabbit's eye. Richet and Héricourt have yet given no evidence as to the duration of the immunity they claim to have produced in dogs. Grancher and Martin's rabbits, however, outlived the controls by many months and even years, but in most cases ultimately succumbed to some complicating organic lesion other than tuberculosis, which is thought to have been the result of the toxic products injected in making the preventive inoculations.

Faint and fragmentary, therefore, as is the evidence that artificial immunity against tuberculosis is as yet anything more than a dream, this preliminary study of the effect of preventive inoculation upon the primary lesion in the rabbit's eye, when taken in connection with the experiments of the observers named, indicates a possibility of producing at least a relative degree of artificial immunity in this disease, and warrants the following conclusions:

1. Preventive inoculations of living cultures of avian tubercle-bacilli cannot be made in rabbits without some danger to the animal's health and life.

2. The tuberculous process induced in the eyes of rabbits which have been subjected to the preventive inoculations differs in its course from that observed in the controls, and may even entirely abort, ending in an almost complete restoration of the infected eyes—a result never observed in the controls.

3. Uncertain, imperfect, and generally only relative, as this artificial immunity against tuberculosis appears, it is nevertheless sufficiently marked to be demonstrable.

A MODIFICATION OF HEDIN'S HEMATOKRIT.[1]

BY W. F. ARNOLD, M.D.,
PASSED ASSISTANT SURGEON, U. S. NAVY.

I DO not know that there is any necessity to apologize for bringing up this matter when the direct references to it in the English medical literature accessible to me are contained in Von Jaksch's

[1] Read before the San Francisco Bacteriological Society, August 1, 1894.

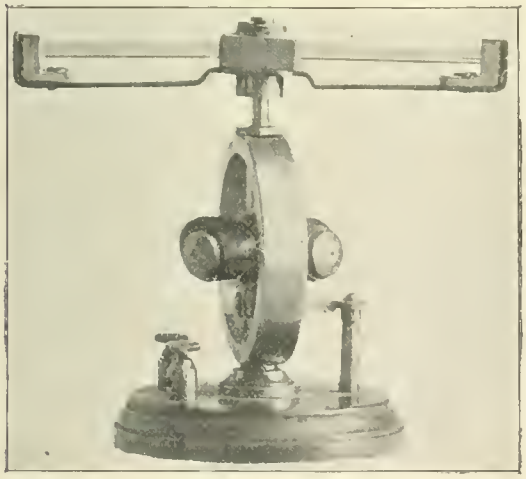
Clinical Diagnosis,[1] and the *New York Medical Journal*, February 3, 1894, p. 151. The latter reference gives an abstract of the contents of a paper by Dr. Judson Daland, read before the New York Academy of Medicine on January 16, 1894, to which I refer those interested for nearly all the practical information extant upon the subject. Dr. Daland, with Dr. Carl Sadler, of Prague, has for some time been collecting data relating to the instrument, in the ultimate usefulness of which he expresses an abiding faith on what appeals to me as a most rational basis.

My own irregular mode of life, almost devoid of free moral agency, from the very nature of my position, has prevented me up to the present time from adding any connected observations to those cited. I can only state that I have found the estimates of the numbers of the corpuscles by percentage-volumes, as given by Dr. Daland, correct within the limits assigned by him in the comparative estimations that I have made, using the Zeiss-Thoma hemocytometer; but these have been few in number, and not in all cases above reproach as to the exactness of their technical performance.

I hope to be able to make a number of observations upon the members of the crew of the U. S. Coast-Defense vessel *Monterey*, and upon opportunity to extend them so as to include pathologic blood-states; but this is a matter of conditional promise, and, like *obiter dicta*, of little binding force and effect.

On February 15, 1894, I devised a modification of Hedin's instrument, substituting rubber blocks

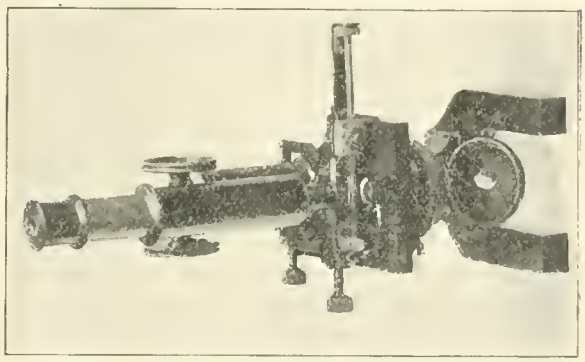
FIG. 1.



for the springs used to hold the tubes in place and to prevent leakage; it is shown in Fig. 1, in place upon a small electric motor hereinafter to be described.

It was with this now discarded design that nearly all of my observations have been made. I think it satisfactory as an hematokrit of the kind promulgated by its originator; and I believe that the further modification that I have introduced, of measuring the heights of the columns of corpuscles by direct reading with low powers (× 200 or less) of the microscope from the limb graduated for record-

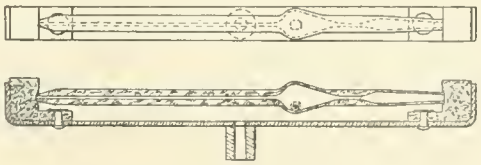
FIG. 2.



ing the lateral motion of the mechanical stage, instead of the set graduations upon the tubes containing the diluted blood, is really an improvement worthy of the name. The method of taking the reading is shown in Fig. 2, the microscope resting on a support upon the edges of its stage and of its foot, to prevent bevelling of the tops of the columns of the corpuscles, which occurs in other positions, from gravitation. Of course, some forms of microscopic stands will not lie in this position, but very little ingenuity would obviate this difficulty.

Within the past week, considering the sources of error introduced and the trouble involved in the

FIG. 3.



process of transferring the diluted blood from the capillary tube, for measuring and mixing, to the tubes of the hematokrit, I have designed a frame capable of receiving and holding during rotation the tube for measuring and mixing itself. This is shown *in situ* in Fig. 3, which is a reduced working drawing, complete even to the conventional hatchings for the representation of composition, of rub-

[1] Charles Griffen & Co., London, 1893, p. 25.

ber, and of glass. For this refinement I am indebted to a messmate, Passed Assistant Engineer G. S. Willits, U. S. Navy, who has made both the frame and this drawing of it.

With this arrangement the blood is diluted, and, after thorough mixing in the bulb, the capillary portion of the tube is filled with the mixture to its tip and placed in the frame and secured upon the motor, or upon the train of gearing for rotating. The result of effective rotation will be that all of the fluid above the center of form of the tube (its tip being considered as the lower end) will run into the bulb and that part of the tube above it, while the longest possible column of blood (for a given length of tube) of constant length and of absolutely exact dilution will be separated into its particulate and fluid components.

Then, either the graduations on the tube, or the microscope and its mechanical stage (and I prefer the latter as more nearly conforming to the best scientific methods of measuring with great accuracy), may be used to get the percentage-volume. The capillary tube that I employ is that furnished with the Zeiss-Thoma apparatus for counting the colorless blood-cells. There is no reason why the finer tube supplied for counting the red blood-cells should not be used instead. I employ the first named because it is more easily cleaned.

I am sorry that my experience does not enable me to speak definitely about the best diluent to be used. Separation is certainly easy with solution of potassium bichromate (2.5 per cent. strength, recommended by Daland[1] as the best of nineteen fluids tried); but I have found a liberation of gas—presumably oxygen—to be associated with the use of this, and it has proved troublesome by disturbing the layer of the colorless corpuscles. I have seen large bubbles rise and carry a line of red cells high into the supernatant liquid when the tube was under microscopic observation as depicted in Fig. 2.

By most fixing-solutions, such as Hayem's, separation is made impossible.

Coagulation vitiates the results in all cases in which it occurs, by entanglement of the cells in the meshes of the fibrin and by the bulk of the fibrin itself. It would be a great aid if it could be prevented by some vaporous agent, which would obviate the necessity of diluting the blood.

It would be a great mistake to imagine that, using blood thus diluted, the layer of colorless blood-corpuscles will obtrude itself upon the notice of even a reasonably careful observer. It is not, at least in normal blood, nearly so wide as a church door; and it is best described as a cream-colored or buff-colored tip upon the comparatively long column of red blood-corpuscles. Daland[1] indicates briefly this indefiniteness. I have found Müller's fluid, deeply tinged with methyl-violet, to aid somewhat in differentiating the layer of colorless corpuscles. It has the disadvantage of coloring the blood-plaques, which would, in that event, vitiate the result in proportion to their number. Daland says that this occurs in the absence of stains, or rather he notes a case in which the blood-plaques proved a source of annoyance.

Obviously, therefore, this instrument cannot replace the hemocytometer, which, with all its faults, will remain a claimant for interested favors, if not of affection, at our hands. But it may save time, and the great nervous strain inseparable from counting the squares, by indicating those cases that unequivocally demand its assistance. Personally, I have never found any employment so irksome as the accurate use of this excellent instrument of precision; hence I am willing, at the risk of imputation of laziness to myself, to allow electricity to remove this irksomeness, if it can be done (as I think it can be) in a perfectly trustworthy manner.

I hope sincerely that some of the gentlemen of the Bacteriological Society of San Francisco, or others of the medical profession to whom this product of enforced idleness may come, will find the subject of sufficient interest to enlist their aid in determining the limitations and the usefulness of the principle embodied in the instrument described. My own *clientèle* is limited perforce to men so carefully selected that dyscrasiæ, such as leukocythemia, should not, and as a matter of fact do not, often occur; so that the best results I could secure under exceptionally favorable conditions would deal only with states of comparative health, and these seem to be of the least importance of all the data necessary for the present status of the hematokrit, and its early establishment as a factor for constant use in diagnosis.

A word regarding the motor shown in Fig. 1, which is one-half size; it is, I believe, the invention of a New York dentist, and its resemblance to the gyroscope is apparent, the limbs of the moving part of that toy being the magnets, and the spindle upon which they revolve the shaft of this machine. The analogue of the frame of the toy is here the armature, composed of "soft" iron, and the presence of the current in it adds to the efficiency of the motor very decidedly, but in a manner not easily explicable, so electricians inform me. It will run at a speed of from 1200 to 2000 revolutions per minute in circuit with an ordinary incandescent lamp; and four Daniell or bichromate

[1] Loc cit.

[1] Loc cit., and American Journal of the Medical Sciences, vol. cvii, p. 511.

cells, or any good cautery battery, will drive it well with a fair load. I have used it for two years for centrifugal separation in urinalysis and for the little use I have made of Charcot's and Luys' *miroir rotatif*. It may be obtained from Frank Wilks, Scott's Wharf, Newport, Rhode Island, to whom I am indebted for much valuable information, and whose thoroughness as a designer and as an accomplished artisan it affords me much pleasure to acknowledge.

U. S. Coast-Defence Vessel "Monterey,"
Navy Yard, Mare Island, Cal.

STOCKINET COTTON AS A MATERIAL FOR BANDAGES; ITS ADVANTAGES AND USES.

By W. A. CROSS, M.D.,
of Jenkintown, Pa.

In calling attention to stockinet cotton as a desirable material for bandages I will state what it is, what I conceive to be its advantages, and some of the conditions wherein it is well adapted to meet the requirements of the individual case.

The material itself is simply the woven cotton as it comes from the loom, in long double strips, of different widths and thicknesses, suitable for being cut and shaped into stocking-legs. It possesses qualities that peculiarly fit it for so many of the requirements demanded of a bandage. It is soft, pliable, and elastic, easily adapting itself to inequalities of surface, giving firm pressure and support, yet so yielding that it admits of comfort and motion when motion is desired. It may be made of any length, width, or thickness; it may be washed and ironed just as a stocking is laundried, care being taken not to stretch it lengthwise, but drawing it out sidewise previous to rolling or folding it for use.

My attention was first directed to the use of stockinet for bandaging purposes by an article by Dr. W. W. Bremner, of New York City, and published in the *Medical Record* some two years ago. In that article attention was called to the superior qualities of this material for bandaging the lower extremities in the treatment of ulcers and varicose veins.

All physicians know how unsatisfactory the muslin bandage often is; and even the flannel bandage will not always meet the requirements. These need to be applied with the greatest of care and expertness, and even after the most careful application, we find upon their removal that the part has had very uneven pressure, as indicated by the many creases, depressions, and bulgings present.

The stockinet bandage is very easily applied—in fact, so simple is its application that any person of ordinary intelligence may be considered competent to put one on after a little instruction, and the material is so soft and elastic that it will easily conform to the contour of the part to which it is applied.

The various conditions of the lower extremities that necessitate the bandaging of those members can best be met by the use of this material, and will most plainly exemplify its qualities and advantages.

The lower extremities are always the dependent parts; the returning venous blood has the force of gravity to overcome; as assistants to the return we have the elasticity of the coatings of the veins, the valves which prevent the backward flow, and the contractions of the surrounding muscles when in action. If from long-continued pressure, or other form of obstruction, this return circulation is interfered with, the blood overloads and distends the veins until they lose their elasticity, just as a piece of rubber that has been overstretched loses its contractile quality. When this elasticity or tone is lost, the veins become varicose, and there result, by imperfect circulation, malnutrition, ulceration, and various other undesirable conditions. When this varicosity exists in a leg, a cut, scratch, or contusion may occasion an edematous state of the foot and leg, with long-delayed healing.

There is no form of treatment that will give such satisfactory results in the conditions enumerated as bandaging and rest. The very best place to get this care is in a hospital, but unfortunately, only a few of the many sufferers from these troubles can avail themselves of the advantages of hospital-treatment. The majority cannot have the care at their homes which is desirable; the father must earn the daily bread, the mother must care for her children and the numerous household affairs; the physician does the best he can under the circumstances, but how disappointing are his results in the majority of such instances.

To successfully treat varicosities, ulcerations, and other conditions that accompany and are dependent on these lesions, particularly when it is necessary for the patient to be on his feet from eight to ten hours out of the twenty-four, it will be necessary to give support to the over-distended veins and the relaxed tissues. As a rule, the rubber stocking is depended on for this support, but it is an uncomfortable thing to wear, it is expensive, and it rarely fulfils the purposes for which it is employed.

Stockinet as a bandage more nearly meets the requirements for the successful treatment of these cases than any other material with which I am acquainted; its easy application, thinness, and flexibility admit of exercise being taken with perfect freedom; it does not need to be removed and reapplied oftener than every two or three days.

In the treatment of wounds and ulcerations of the leg, when one wishes to use a local application, and should this dressing be of an oily nature, it may be

applied on fine lint or ordinary absorbent cotton, or such cotton rolled or compressed into sheets, and this covered with oiled silk that has a rubber finish, and the bandage adjusted; the stockinet will conform to the inequalities occasioned by the dressing, and even pressure will not be interfered with.

In all leg-bandaging we could do no better than follow the directions given by Dr. Bremner, as follows:

"The patient, seated in a chair of ordinary height, should place his foot on a stand of the same height, or on the corner of the chair on which the operator sits, and, wherever the wound may be situated, the bandaging should always be commenced at the foot. The first turn should be made over the center of the ankle, going under the foot in a figure-of-eight; the second turn should go half an inch higher than the first, again going under the foot, and one turn around the front of the foot close to the root of the toes; the third turn should go half an inch below the first, then under and once around the foot again; the fourth half an inch over the second, and the fifth half an inch under the third, each turn going under and around the foot once only for each turn around the ankle and coming just to the root of the toes. In cases where the wound or ulcer is below the ankle it is necessary, in addition, to make two or three turns directly under the heel, coming over the instep in front.

"The bandage must then be made to ascend the leg by spiral turns of about half an inch each until the center of the calf is reached; above the center the turns should ascend from an inch to an inch-and-a-half each. It is very important to attend to this point, as the bandage exerts all its force at the calf, and if too many turns are put on, the circulation beneath is obstructed. No reverses should be employed. If you use a six-yards bandage and more than two rolls are used, all but the last should be commenced at the foot; the last roll in every case should be applied from above downward in inverse order to the first. A stocking can easily be drawn over the bandages without disturbing the folds.

"In applying the bandages the greatest care should be taken to regulate the pressure in such a way as not to cause stagnation of the venous circulation in the foot. This can be done by always applying rather more pressure to the foot than to the leg. The ideal is to have the pressure graduated in such a manner as to be greatest at the foot, and evenly and gradually less in ascending the leg."

The interference with the venous circulation in the lower extremities which occurs so frequently during the period of gestation, which occasions such distress and does violence to the integrity of the coatings of the veins, may be successfully combated by this form of bandaging, and will not greatly interfere with the movements of the patient. In fractures of the long bones it is a very desirable bandage to use, but only in exceptional cases has it any advantage over the ordinary roller bandages of muslin or gauze.

In the dislocations and sprains occurring in the extremities it is of the greatest service. Having had the professional oversight of one of the teams connected with the Inter-Academic Athletic Association for several years, I have had quite an experience in the treatment of the various injuries unavoidably associated with the exercises of the gymnasium and with the playing of the games of foot-ball and base-ball.

In this class of injuries the bandage plays a most important part in the treatment; whether it is desired to secure the proper compression and support, with absolute rest for a season, or whether limited motion is permissible or desirable, nothing has met the requirements so satisfactorily, in my experience, as the stockinet bandage. In cases in which a joint has been injured by dislocation or strain, and in which it has been the usual habit to depend on the rubber cap for support, I have found stockinet to meet the requirements in a much more satisfactory manner, so that I use it to the exclusion of all other appliances. My praise and advocacy of the use of stockinet as a superior material for bandaging may seem somewhat inordinate, but it has proved to be so serviceable and satisfactory that I have wished to bring it to the attention of the profession in order that its qualities may be tested, proved, and appropriated.

CLINICAL LECTURE.

EXTERNAL PERINEAL URETHROTOMY.

A Review of Nine Cases.

BY W. B. ROGERS, M.D.,
PROFESSOR OF THE PRINCIPLES AND PRACTICE OF SURGERY AND CLINICAL SURGERY IN THE MEMPHIS HOSPITAL MEDICAL COLLEGE.

YOUR attention is requested to-day, gentlemen, to a detailed review of the salient points in the nine cases of external perineal urethrotomy that you have witnessed at this clinic within the past few months.

On the board you see diagrams of the conditions existing at the time of operation in the first eight cases, in all of which stricture of the urethra existed. The ninth operation was exploratory in a case of cystitis, which proved irremediable. It is hoped that you have kept careful notes of these cases and that you will follow me closely. I do not feel that any apology for this review need be made. The importance of the subject warrants its frequent presentation.

Collectively these cases present nearly every condition for which you will be called on to do the operation of external perineal urethrotomy and nearly every local complication you will likely encounter in a lifetime-practice in this department of surgery; therefore, I trust this review will neither prove uninteresting nor unprofitable.

The operation was imperative as a life-saving measure in at least four instances, and sooner or later the same condition would have been reached in four others. Of the evident relief afforded in all but one case you can testify. The ninth case was exploratory upon the bladder.

In no case was there hemorrhage of any consequence. In none was there a history of traumatism to the urethra to account for the stricture; hence the contractions were attributed to admitted gonorrhea.

External perineal urethrotomy is done for various

purposes, namely: To facilitate the use of instruments within the bladder in the removal of tumors, calculi, and foreign bodies introduced from without; to facilitate the use of instruments in operations on the prostate gland and removal of prostatic calculi; for the removal of calculi engaged in the urethral canal; for the relief of stricture of the membranous urethra; to insure drainage, as well as free escape of urine, in cases of a urethra ruptured traumatically or otherwise, as well as to divert the urine and give rest to the anterior urethra after operations thereon; to give a more direct course to the bladder for the introduction of the catheter in cases of retention from enlarged prostate; lastly, as a part of the operation for securing drainage and consequent rest to a chronically inflamed bladder.

When preparatory treatment can be instituted do not fail to thoroughly cleanse the alimentary canal, preferably by the use of calomel and soda.

Always examine the urine for tube-casts. Sometimes they admonish not to operate; again, when operation is imperative, they modify the prognosis.

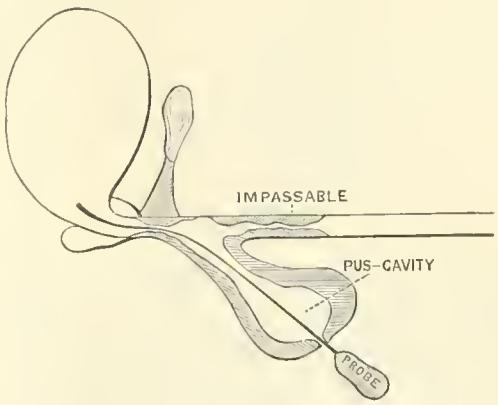
If the urine is hyperacid give an alkali; if alkaline from decomposition in the bladder, benzoic acid is serviceable, five grains every four hours. For scanty urine give lemonade in abundance. Before doing any cutting or dilating in the urethra never fail to thoroughly irrigate the canal and all pus-infected surfaces when they can be reached, and never fail to repeat the irrigation (including the bladder) after doing an external perineal urethrotomy. Always retain a catheter in the bladder to prevent contact of urine when this is of bad quality.

Quinin, either as preventive or curative of rigors following manipulations or operations on the urethra, has proved a masterly failure in my experience. If the patient is bilious and comes from a malarial climate, quinin, with mercury, is indicated, because shock often brings on a malarial chill, but for rigors *per se* and recurring, no benefit follows from the administration of quinin. Opium hypodermatically does more to prevent rigors than all else in the way of drugs. Protect the cut or dilated surfaces from contact with urine. Correct abnormal conditions of the urine before operating, and if there be no kidney-complications, rigors will not be of serious import. Lastly, a sound, full size, under anesthesia, local or general, should be introduced between the third and the fifth day after the operation, and reintroduced at intervals of from three to six days, until the wound has healed, and its use continued at proper intervals so long as there is any tendency to recontraction when the operation has been undertaken for the relief of stricture.

CASE I. *October 1, 1893. Impassable urethral stricture; urinary scrotal abscess.*—Robert S., a white, thirty-two years old, presented a temperature of 103°, a pulse of 140, and a history of fever, and an average of three rigors to the twenty-four hours for the previous ten days. The secretions were all bad. The bowels were constipated. The scrotum was immensely swollen, and red, and fluctuation was distinct at its base. The urine escaped by driblets continually, but by forced effort the bladder could be nearly emptied. The first indication was the evacuation of the scrotal abscess. On incision a quantity of pus and decomposing urine escaped. No effort was made to enter the bladder through the urethra, as the urine was now easily voided through the scrotal opening. A urinary fistula was therefore completed. Cathartics were prescribed, and on the next morning our patient was free from fever and quite comfortable. Ten days elapsed before you again saw him. His general condition had meanwhile much improved, and time had allowed the local condition to mend. Much of the inflammatory thickening had disappeared, but the parts were not in good condition for operation, and yet an evening rise of temperature warned that the bladder needed relief.

Accordingly, exploration of the urethra was made. You will recall that there existed a stricture, as indicated in Fig. 1, which failed to admit even the filiform guide.

FIG. 1.

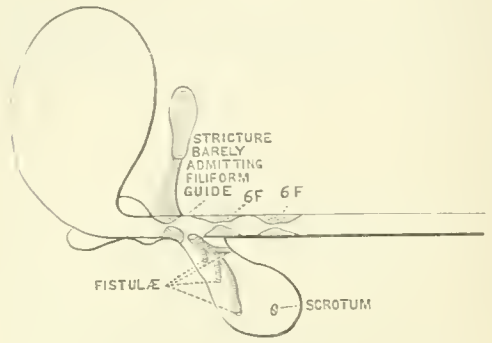


Just behind the stricture was the opening in the urethra, and it was by this channel that the urine came originally into the scrotal abscess-cavity, now a fistula. You will recall how much difficulty was encountered in passing a probe through the fistula, to the urethra, in through this opening, and on down the rugged cicatricial perineal region. However, the probe was finally located in the membranous urethra, after first being introduced and then withdrawn from several sinuses which honeycombed the perineum. The section was made on the probe as a guide, and after washing out the bladder, the urethra was followed forward to the meatus, the urethrotome introduced, and all contractions cut, so that a No. 32 F. sound passed the entire length of the canal. The hemorrhage was slight. A catheter was placed in the urethra and bladder, and retained for a few days. The patient made an excellent recovery; the fistula healed, and a No. 29 sound passed easily. Let me remind you that this is the patient whom I found in almost the same condition, and whom I afforded the same relief by external perineal urethrotomy eight years before. The case should teach you the same lesson that I hope he has learned, not to neglect the use of the sound after operations for stricture. The dribbling of urine resulted from an over-filled bladder, which, with the aid of the abdominal muscles, could be partially emptied, but some urine was always left, called residual urine. The fever resulted from the infiltration of the scrotum when first presented; later on the residual urine by decomposition caused the evening rise of temperature. When there is an acute inflammation, with pus and putrid urine in the

tissues, you will often find, after evacuating the focus of infection, that a little delay will afford a better field-tissue to work in, and consequently a better result.

CASE II. *October 7, 1893. Multiple stricture, with fistulæ and infiltration of urine.*—Andrew Y., fifty-eight years of age, was referred to the clinic by Dr. Wright, of Mississippi, with a history of long-standing urethral obstruction, which, on examination, was found to be due to three narrowings, as shown in the accompanying diagram (Fig. 2). There was active inflammation of all the

FIG. 2.



tissues surrounding that portion of the canal contained within the scrotum. Six fistulæ were discharging pus through the scrotum and at the base of the penis. Nearly all the urine was voided through these fistulæ. The general condition of the patient was miserably bad.

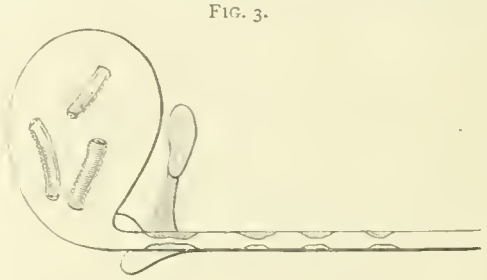
It was with much care and patience that a filiform guide was passed into the bladder, and, over this, Rogers' tunnelled urethrotome, aided by a little firm pressure, was guided past the membranous portion of the canal; then the bulb was formed, and the contractions cut to full size as the instrument was withdrawn. The deep stricture was cut in the floor of the canal, and the instrument was then reversed so as to cut the penile contractions in the roof. A staff was readily passed into the bladder, and on this the perineal urethra was laid open its full length from without. The various fistulæ were explored with a grooved director and laid open, so that thorough drainage was secured for these pus-infiltrated parts. The bladder was then emptied of a pint of foul urine and thoroughly irrigated. Examination of the bladder with the finger through the dilated prostatic urethra failed to disclose a calçulus. That no urine might come in contact with the newly-cut surfaces until granulations were well established, a soft-rubber catheter about the size of the urethra was now passed into the bladder, but before this was done a double silk ligature was passed through the wall of the catheter (avoiding encroaching on its caliber), about three or three-and-a-half inches from its point; then when the catheter was passed the ligature was found lying in the wound. A piece of gauze, folded to a size to fill the wound, was packed into it, and tied to the catheter by means of a ligature. This tampon of gauze served two purposes. It kept the catheter from escaping from the bladder, and it also checked the hemorrhage. The usual dressings of gauze and cotton, and a T-bandage were now applied, and the patient was put to bed.

External perineal urethrotomy was not only the safest procedure in the treatment of the deep stricture, but it was indicated to give rest to the anterior portion of the canal surrounded by fistulous tracks; besides, a thorough digital exploration of the bladder in such cases is highly satisfactory, and often reveals the presence of unsuspected foreign bodies.

Hemorrhage was but slight, and the patient made an excellent recovery. Sounds were reintroduced at proper intervals, and the patient returned to the clinic for dilatation up to March 8th, when all of the fistulæ had healed. A No. 30 F. sound could now be passed. There still existed much peri-urethral induration.

CASE III. *November 19, 1893. Cystitis; multiple stricture; foreign body in bladder.*—H. W., thirty-six years old, who was sent to the clinic by Dr. Branch, had suffered more or less with cystitis for five years, and had had a stricture for about the same length of time. His suffering had become intense, and urine was passed every few moments. Examination of the urethra revealed several contractions, as shown in the accompanying diagram (Fig. 3). External perineal urethrotomy

FIG. 3.

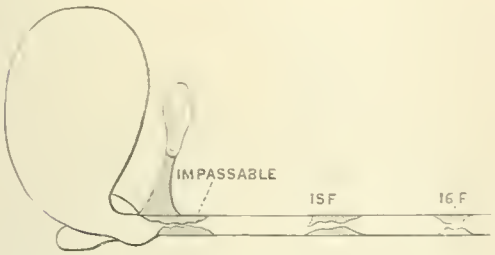


was determined upon, because of the number and the small caliber of the strictures. Free escape of urine through a perineal incision is safer than allowing the fluid to pass over multiple urethral incisions. Moreover, the contractions were very resistant to the sound, arguing against treatment by gradual dilatation. A small staff was passed and the perineal urethra laid open from without. My finger was passed into the bladder and a foreign body felt. With forceps three segments of a soft-rubber catheter, as you see here, averaging an inch each in length, were extracted. They are encrusted with phosphates precipitated from the urine. Here you have an example of a foreign body acting as a nucleus to a stone, and this case ought to re-impress upon you the advisability of putting your finger in the bladder whenever this is practicable. The urethra was cleared of all contractions. The patient, on coming from the anesthesia, recalled the time two years before when he lost the piece of catheter, but had forgotten to tell us before operating. He made an excellent recovery.

CASE IV. *November 22, 1893. Cystitis; multiple stricture.*—H. R., thirty-nine years old, suffered intensely with chronic cystitis. His symptoms began many months before, and had gradually grown worse, finally necessitating the act of urination every twenty minutes. The stream was very small. Examination with bulbous sounds located two penile contractions of the caliber as shown in the appended diagram (Fig. 4), while the membranous urethra here was so narrowed that it was impassable to instruments. Treatment by gradual dilatation was contra-indicated by reason of the impassability

of the stricture and the urgency of the symptoms. The bladder loudly demanded rest. A small staff was passed just into the membranous urethra. It was firmly pressed against the stricture and then reversed, its point being thrown toward the perineum, after Fleuhrer's practice, and the canal was opened by an incision through the perineum. Thus we were at the distal extremity of the membranous structure. The lips of the wound in the

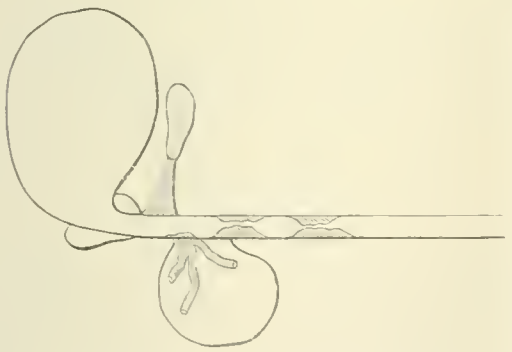
FIG. 4.



urethra were seized with forceps and held apart, and then with much teasing the small probe was passed along the tortuous and narrow canal into the bladder. Along the side of the probe a grooved director was forced until a drop of urine appeared, showing that the bladder was reached. The probe was withdrawn and the floor of the membranous urethra laid open upon the director. Internal urethrotomy on the two anterior strictures gave easy admission to a No. 32 F. sound. On January 4th the patient was dismissed, after passing in your presence a No. 32 F. sound.

CASE V. *December 19, 1893. Two penile strictures; multiple urinary fistulæ.*—G. G., forty-five years old, presented two pronounced urethral narrowings, as shown here in the accompanying diagram (Fig. 5). The pos-

FIG. 5.

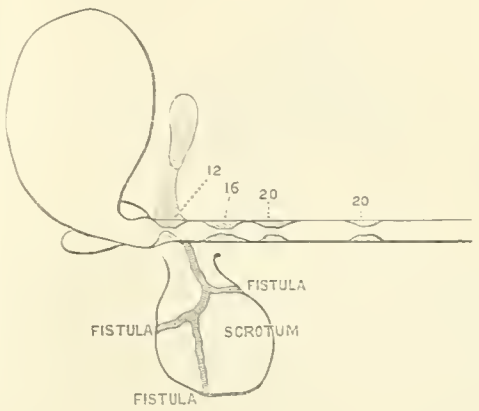


terior one involved the bulbous portion of the canal, and was so small in caliber that the urethra behind it, from the pressure of urine forced by the inflamed bladder, had given way. The urine first gave rise to the formation of an abscess, and later found vent through the three fistulous openings, as shown. All of the urine escaped through the fistulæ at the time the man was presented. His condition was bad in the extreme. Fever, pain, emaciation, constant and slow poisoning from the presence of pus in the scrotal tissues, together with cystitis, promised an early death. In this case internal urethrotomy alone might have been done and relief possibly obtained, but I greatly prefer doing the perineal operation from without in such cases, in addition to the internal penile urethrotomy. The posterior outlet affords rest to the inflamed anterior segment of the urethra, and you get more rapid improvement, both local and general; and this case truly exemplified such teaching.

The external perineal urethrotomy was done, and the bladder explored and irrigated. The patient steadily improved during the eight weeks of his attendance here, but, like most of this class of patients, as soon as the fistula had healed and he was getting along well he gave up treatment. The probability is that we shall see him here again next year in the same condition.

CASE VI. *January 9, 1894. Multiple stricture; four urinary fistulæ.*—G. R., thirty years old, had had repeated attacks of gonorrhea, which had resulted in numerous contractions of the urethra, as shown in the appended diagram (Fig. 6), which shows four pronounced stric-

FIG. 6.



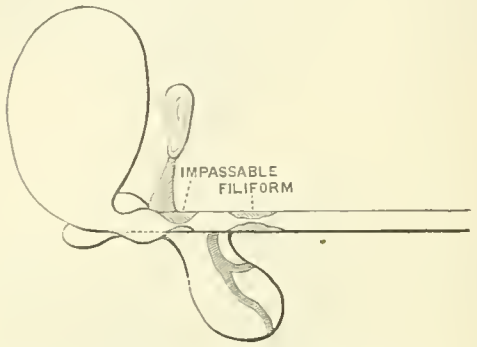
tures, ranging from a caliber of No. 20 down to No. 12 F. You will recall that the first step was an internal urethrotomy on the anterior urethra, cutting everything to size No. 30. Next, the point of a small staff was engaged in the membranous urethra; then the instrument was reversed so that the convexity was directed toward the pubis and the point bulged in the perineum. This is a procedure suggested and practised by Fleuhrer, and is worth remembering. It has frequently done me good service. With the point of the staff pressing toward the perineum the opening was easily made. The membranous urethra was laid open its full length. A No. 30 F. sound was passed. A catheter was then introduced and retained in the urethra by the means described in the report of Case II. Through this catheter the bladder was thoroughly irrigated; and the patient was sent to bed.

On February 1 sounds Nos. 30 and 32 were passed. The patient left the hospital, but returned frequently for the introduction of the sound, and is doing well. All of the fistulæ have healed.

CASE VII. *February 20, 1894. Two strictures with fistulæ; operation without a guide.*—O. W., thirty years old, gave a history of repeated attacks of urethritis. He passed water with much difficulty. There were two strictures, with two fistulous openings, as shown in the

accompanying diagram (Fig. 7). The perineum was inflamed, hardened, and infiltrated with pus. Every effort to pass a filiform guide into the bladder failed, and an incision was made through the perineum without a guide. The case was rendered especially difficult by reason of the condition of the perineum already described. No anatomic landmarks in the soft tissues were left, and reliance had to be placed on the sense of touch, aided by a good light. The perineum was carefully incised, keeping line by line well in the middle, with the left index finger guiding until the corded urethra was located, exposed, and seized with a tenaculum. The canal was then opened, and the small probe passed into the bladder; then this small director, on which the stricture was divided. The prostatic urethra was dilated, and the

FIG. 7.

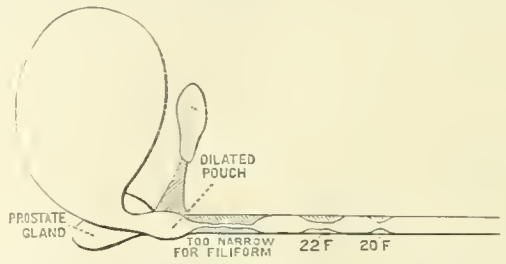


finger explored the bladder. Internal urethrotomy was next performed at this point, as indicated by the stricture, and a No. 32 F. sound was passed the full length of the canal. The sinuses were laid open. A soft rubber catheter was introduced and retained in the urethra for three days in the manner described In the report of Case II.

On March 8th the patient was doing well, and a No. 30 F. sound was passed.

CASE VIII. *Multiple impassable strictures; external perineal urethrotomy without a guide.*—G. B., thirty-eight years old, a white man, gave history of repeated attacks of gonorrhea. A stricture was known to have been in existence for several years. When the man presented himself he passed a pin-hole stream of urine with much pain, and was having fever every evening. The urine was voided with pain every half-hour, both by day and by night. You will recall that under anesthesia every effort was made to pass an instrument into the bladder, but without success. The filiform guide, even, failed to enter. The appended diagram (Fig. 8) shows the location of the various contractions and the caliber of each. The guide would not enter the perineal urethra. There was no peri-urethral collection of pus, no false passages to mislead. The perineum was in its normal condition. External perineal urethrotomy was done without a guide. You will further recall that very little trouble was experienced in finding the urethra just anterior to the prostate gland, where, as I have shown you on the diagram, this dilated condition existed. Upon opening the urethra in this dilated part, the next step was to explore the bladder with the finger, and allow me to again recommend that you do not fail in these cases to do this. No stone was found. The canal was then traced forward, the urethrotome freely used, and a full-sized sound passed. After ten days the patient was up and left the hospital, able to pass a No. 30 F. sound.

FIG. 8.



You will rarely find a case suitable for external perineal urethrotomy without a guide presenting so anatomically clear a perineum; and the ease of performance of the operation in this case should not mislead you to consider it a trivial procedure. A correct understanding of the anatomy was all that was needed in this instance, but do not forget Case VII, which presented such a contrast to this.

The pouch-like condition of the urethra is said by Cocke to exist in all cases of impassable stricture of the membranous urethra. The mechanism of the formation of this pouch I have more than once explained to you.

CASE IX. *February 10, 1894. Chronic cystitis.*—Wm. McD., a white man, twenty-three years old, had been for twelve or more years a sufferer with cystitis, the origin of which he could not explain, never having had any venereal disease. Aside from the bladder-complaint his general health was excellent. His left hip-joint was ankylosed and the limb was a little shortened in consequence of an arthritis in early childhood. The call to urinate was almost constant, and had to be complied with every half-hour during the day, and his getting up at night, urinating and returning to bed, had become so nearly automatic, that though for years he arose a score of times each night, his health had suffered little or none. He was able to attend regularly to his work as cashier in a retail store. His urine had never contained blood, but frequently was clouded with pus. There was not much pain in the act of urination, though much discomfort was caused by an effort to retain more than a few ounces. The patient had been under observation for some months. At no time had I found tube-casts or epithelium in the urine pointing to a kidney-complication. There was, however, an abundance of pus, and the urine was either neutral or alkaline in reaction. At times the urethra showed inflamed patches when viewed through the endoscope. There was no urethral narrowing. Each introduction of an instrument into the deep urethra, whether cocainized or not, caused dizziness and, if persisted in, fainting.

I had failed after repeated explorations to find any stone. Medicinal therapeutics had been appealed to, but had signally failed to afford any relief. Irrigation of the bladder had not afforded benefit, and I found that the bladder would not retain more than three ounces of warm solution. An effort was made to overcome the

contracted bladded by hot-water injections, but I was unable to increase its holding-capacity. Having exhausted all of these resources for relief, I determined on digital exploration of the bladder. The viscus was not susceptible of dilatation, so that suprapubic cystotomy was not practicable. A subpubic route was thus forced upon us. The ankylosed hip caused but little inconvenience in performing external perineal urethrotomy. With my left forefinger introduced into the bladder I found the walls of the viscus (as felt between the finger within the cavity and the right hand pressing down above the pubis) hypertrophied to at least an inch in thickness. The vesical cavity was divided into two compartments, so to speak, by a slight transverse narrowing, while the surfaces felt very rugged and ulcerated. As nearly as I can describe the condition, it resembled the inner surface of a hide newly taken from a beef by a novice at skinning. I could easily explore the entire surface within, and found neither tumor, pocket, nor calculus. The case was one of chronic inflammation of the bladder; the question of causation was obscure and of no interest now, because we had before us the effect of prolonged inflammation, a thickened, hypertrophied bladder, not amenable to any treatment. The neck of the bladder was forcibly dilated, and paralyzed temporarily. At the end of a week the patient was up, with the wound nearly closed, and able to retain urine for an hour and a half at a time. After four weeks the bladder had resumed its former half-hour regularity of action. The patient was fitted with a rubber urinal for use day and night.

In this case you saw a condition that needed treatment —one like many that you will encounter in practice, whose cause you cannot remove, because you cannot locate it, and, in fact, an original cause often ceases to act, leaving behind it a morbid condition, which sometimes is one that we cannot remedy.

CLINICAL MEMORANDUM.

THREE CASES OF GLYCOSURIA COMPLICATING ATTACKS OF APPENDICITIS,

With the Report of a Case illustrating Nature's Rôle in Effecting a Cure.

BY JOSEPH LEIDY, M.D.,
OF PHILADELPHIA.

So far as I have been informed, glycosuria has not been noted as a condition complicating appendicitis. The following notes of several cases that have come under my observation during the past three years may prove of some interest to those interested in this, one of the most important affections that the physician and surgeon has been called upon to treat during the past decade.

The first case is that of a young woman, referred, during the fall of 1890, to the Pennsylvania Hospital by the late Dr. D. Hayes Agnew.

L. H., twenty-nine years of age, single, of good family history, enjoyed good health until the age of twenty-three, six years ago, when she was seized with an attack of obstruction of the bowels (which was the diagnosis made at that time). Since then she has been the subject of recurrent attacks of inflammation in the right iliac fossa, presenting the classic symptoms of appendicular troubles. A firm irregular tumor formed in the right iliac fossa after the first attack, and this has remained. Examination upon admission to the hospital showed the presence of an indurated mass in this region, which had become firmly adherent to the overlying tissues. At a point midway between the anterior superior spinous process of the ileum and the spine of the pubic bone, two inches above, in the line of the iliac artery, is a sinous opening, which had formed since the last attack, three weeks before. Upon the introduction of a probe the point of the instrument came in contact with a hard foreign body, one and a half inches from the opening. The patient applied for treatment, an operation if necessary, to relieve her from her suffering. Her physical condition was fair, notwithstanding her complaint, which, however, was fully explained by future developments. An examination of the heart and lungs proved negative. Urinary analysis showed the urine to have a specific gravity of 1032, and to be pale-amber in color, alkaline, with some sediment. Microscopic examination proved the presence of oxalates and epithelium; and chemic examination disclosed sugar, 2½ per cent.; no albumin or casts were present.

Owing to the inflamed condition of the surface of the skin in the iliac fossa, with the presence of a foreign body, a large flaxseed poultice was applied over the tumor. On the second day there presented at the mouth of the sinus a hard mass, three-eighths of an inch in diameter, which proved later, upon examination, to be inspissated feces; this was removed. Under local treatment the mass rapidly subsided, and before the woman's discharge from the hospital the sinus had healed perfectly, with complete absorption of the induration. This patient made a perfect recovery. The sugar gradually disappeared from the urine, and six months later it had entirely disappeared. It is now four years since the woman came under treatment, and she enjoys perfect health; there has been some gain in weight, and she suffers no disability. The urine is negative. The physical condition of this patient was good upon her admission to the hospital, and was doubtless to be attributed to the attempt on the part of Nature to effect a cure by throwing off the materies morbi, the irritating factor, through an external channel. It is interesting as showing an important rôle which Nature often plays in inflammatory conditions—never, unfortunately, to be depended upon.

The second case was that of J. R., forty-six years old; single; a housemaid; who presented herself at my office during May, 1892, having been under the care of several medical advisers during the previous two weeks, for attacks of acute indigestion. She had always enjoyed perfect health.

The following I transcribe from my case-books: "Temperature 103.4°; pulse rapid, 110; respiration 28; a thickly furred tongue. The patient complains of much nausea, with pain about the umbilicus; the bowels are constipated. Examination of the abdomen showed the presence of a hard mass, the size of a duck-egg, in the right iliac fossa, where there is sensitiveness to pressure. The patient is perspiring from weakness, following the physical examination." She was sent home and placed in bed. An examination of the urine at this time showed a trace of albumin and considerable sugar, with a

specific gravity of 1028. She was the following day transferred to the Pennsylvania Hospital; here she remained thirteen weeks. Frequent examinations of the urine showed the presence of sugar in varying quantities. Under non-operative treatment this patient improved. Unfortunately, after her discharge all trace of her was lost.

My third case was that of A. S., a male, twenty-five years old, single, and greatly emaciated, owing to frequent attacks of appendicitis. He had been treated for several attacks of inflammation of the bowels and for lung-trouble during the past two years. This patient was seen for the first time six months ago, during an attack of severe abdominal pain, attended with exquisite sensations over the whole abdomen, high fever and constipation, which suggested a beginning peritonitis. The focus of pain could not be located. Under absolute rest and medical treatment the inflammatory condition slowly subsided, and soon became localized to the right iliac fossa. After a week of the treatment outlined, all pain and tenderness had disappeared, except over a small area that could be covered by a silver dollar. Over the so-called McBurney's point, upon deep pressure an irregular, indurated nodule could be felt. A continuance of absolute rest, liquid diet, local treatment in the form of poultices and enemata, enabled me to subject the whole abdomen to the severest pressure, without eliciting the slightest pain except over the nodule spoken of. An examination of the urine at the beginning of this attack showed the presence of sugar, a trace of albumin, no tube-casts, and specific gravity 1032. Owing to the extreme emaciation of this patient, with signs of beginning pulmonary disease, with the possibility of the etiology of the condition being tuberculous, operation was postponed until he had regained sufficient strength. At an unfortunate moment during convalescence, feeling so much better, he left his bed to indulge in a too generous meal. This induced an attack of indigestion, followed by constipation, and a relapse worse than the first attack, which he feared would terminate in a general peritonitis, However, he made a fair recovery, and after a prolonged convalescence gained sufficient strength to leave the city. He has steadily improved, and this I was informed has always been the case when at the seashore. During convalescence the sugar disappeared, only to recur in varying quantities. This patient has gone a week without the slightest trace of sugar being found. At this writing sugar has been noted but once during the past four weeks. He remains under treatment, and I shall again report as to the progress of the case.

These cases present the condition of glycosuria complicating appendicitis. In one case the sugar entirely disappeared; in the second the result is negative, owing to my inability to trace the patient; in the third there was a decided betterment. The first case presents Nature's part in her rôle as a friend to the surgeon.

That irritation of the lymphatic nervous symptom has occasioned glycosuria, so-called reflex glycosuria, has been recognized, and in all probability is the explanation of the existence of glycosuria in these cases. The symptom may be considered rare, as in a large number of patients suffering from this condition which have come under my observation I know of but one other, and that is the case to be reported by Dr. T. S. K. Morton. This, I believe, however, is a case of true diabetes.

THERAPEUTIC NOTE.

OXALIC ACID IN COMBINATION WITH IRON AND MANGANESE PEPTONATES AS AN EMMENAGOGUE IN CHLOROSIS.

BY HOMER C. BLOOM, M.D.,
INSTRUCTOR IN GYNECOLOGY IN THE PHILADELPHIA POLYCLINIC AND OUTDOOR SURGEON TO THE GYNECEAN HOSPITAL.

NEARLY a year ago I reported a number of cases in which I obtained successful results from the use of oxalic acid as an emmenagogue and oxytocic.[1] Since that time I have been able to gather a larger number of cases, making the clinical data more satisfactory, as well as establishing this therapeutic procedure upon its true basis. The apparent success at the time seemed to indicate that oxalic acid was indeed the ideal emmenagogue, but subsequent experience has shown that it, like all other drugs or supposed specifics, frequently disappoints in its results.

It is not the intention of this article to belittle or undervalue the therapeutic position of oxalic acid as an emmenagogue, but, upon the contrary, to place it in its true position; for I look upon it, other conditions being equal, as the surest and safest emmenagogue. My early enthusiasm was, I confess, excessive, as more recent clinical studies have shown; and it is to correct as nearly as possible the unintentional over-valuation of the power and value of the drug that these introductory remarks are made.

Since October, 1893, I have employed oxalic acid as an emmenagogue in over one hundred cases, including all forms of amenorrhea; for instance, that dependent upon pelvic disease, the functional perturbation consequent on exposure to cold during the menses, traumatic injuries, and emotional shocks.

Here I would note that the only rational explanation of the frequent cases of amenorrhea occurring among girls or young women following a sea-voyage is to be found in some peculiar nervous phenomenon which is emotional in character; and these cases strengthen the theory recently announced of the nervous origin of menstruation, for in the great majority there seems otherwise to be little deviation from health. It is in this class of cases that oxalic acid will establish the menses in nine cases out of ten in which there is no serious nutritive disturbance.

In cases in which there is a deviation from health which acts as the predisposing cause of the amenorrhea, oxalic acid, uncombined with other treatment looking toward the establishment of a better hematosis, to an improved general nutrition, and to a more nearly normal action of the nervous system, will utterly fail.

From experience gained since the publication of my first article on this subject, I am disposed to think that there are many cases of pregnancy in which oxalic acid fails to display ecbolic power, although in a certain number of cases it is a reliable and safe oxytocic; so that I would trust it in all such cases as the safest and most expedient remedy for the termination of a pregnancy for legitimate purposes.

[1] See THE MEDICAL NEWS, October 14, 1893, p. 431.

When my previous article appeared I had very little experience with the use of oxalic acid in the treatment of chlorosis, and I asked for the drug a more extended trial. Since that time I have had abundant evidence to demonstrate its uselessness in the large majority of cases, uncombined with other drugs looking to the correction of the function of hematosis.

Once in a while a case has been met with in which the anemia was not very pronounced, and in which the acid has seemed to govern, in some way or other, the function of hematosis and bring on the menses.

In a certain number of cases of chlorosis all the usual therapeutic measures fail. A large percentage of cases of amenorrhea are in turn due to chlorosis, and the suspension of menstruation may be viewed as a conservative effort on the part of Nature to spare the system every unnecessary tax or expenditure.

The therapeutic indication, therefore, is not alone the re-establishment of the menstrual flow, but rather the restoration of the general health. With this in view, I have employed a combination of iron and manganese peptonates, which I found to be readily and easily assimilated.

It acted well in cases of deranged functional hematosis, in which there was pronounced chlorosis, with amenorrhea, although it failed in a large number of cases to reëstablish the menses long after the anemia had disappeared. Why this should be so I cannot say. We know from clinical observation that after the entire disappearance of the condition of chlorosis itself, there is often a persistent amenorrhea; and we further know that in these cases there is a strong neurotic element, which may account for the derangement of function which manifests itself in the form of amenorrhea.

With these points in view, and having had my attention so strongly attracted to the peculiar action of oxalic acid in certain cases, and especially in chlorotic cases in which the nervous phenomena were more or less pronounced and the amenorrhea failed to yield to the betterment of the function of hematosis induced by the administration of ferruginous salts, I was led to prescribe oxalic acid in combination with iron, with the result that the amenorrhea was cured; and with a restoration of the menses the nervous phenomena disappeared.

The formula used is as follows:

R.—Ferri peptonat.	. . . .	gr. xij.
Mangani peptonat.	. . .	gr. ij.
Acid. oxalic., C. P.	. . .	gr. ij.
Alcoholis	. . . .	℥iij.
Aquæ	. . . q. s. ad	℥iv.—M.

S.—℥ij t. i. d.

While the results are obvious, the mode of action of the drug is not so clear. Perhaps this is to be found in an influence exerted on the nerve-supply of the organs directly concerned in the function of menstruation.

1427 WALNUT STREET.

The New York State Association of Railway Surgeons will hold its annual meeting on November 15, 1894, at the New York Academy of Medicine. All railway surgeons of the State are invited to be present.

NEW DEVICES.

A SIMPLE AND EFFICIENT TEST FOR BINOCULAR READING.

BY CARL WEILAND, M.D.,
CLINICAL ASSISTANT, EYE DEPARTMENT, JEFFERSON MEDICAL COLLEGE HOSPITAL, PHILADELPHIA.

IT is frequently of importance to know whether both eyes assist each other properly in the act of reading, or whether one eye only is used, while the other deviates or otherwise neglects its duties. The usual test of holding a prism, base up or down, in front of one eye and observing whether or not a point looked at is seen double, is not quite decisive; because such a high prism always throws the image of its eye outside of the macula lutea, and thus gives rise to an entirely abnormal and unphysiologic condition. We are not allowed to assume from this test that the eye which receives the retinal

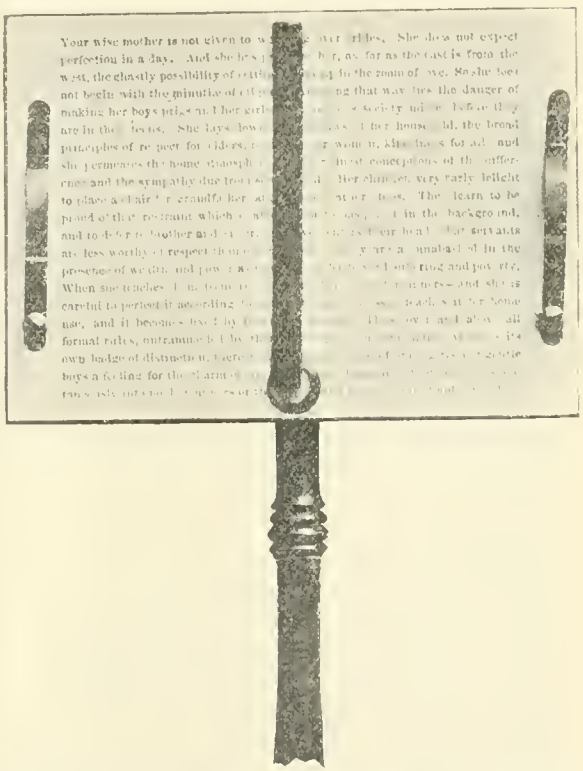


image thrown outside of the fovea will therefore also take part in the act of reading, as the fovea might be affected with a scotoma, or the whole eye be in a position of heterotropia, and avoid diplopia by suppressing its image. For this reason a little apparatus is here brought forward which allows a test under strict physiologic conditions, and which, in one form or other, has probably been employed already by some ophthalmologists.

It consists, as the figure shows, of a rectangular piece of wood, into which a brass rod, five mm. in diameter, is screwed. This rod is bent at a right angle, so that the free part extends parallel to the surface of the wood at a height of about fifty mm. Upon this wooden base

some print is fastened of a size that corresponds to about fifty cm.; but any finer or coarser print may be used, if the case requires it, for which purpose two springs have been added.

This little contrivance is now held by the patient at the usual reading-distance, while the head and hand are kept in the same position. It is evident that in this situation there are *two* places on each line of the print from which the rays can enter only *one* eye, being intercepted for the other by the rod. But as one eye always can see what on account of the rod is not perceived by the other, there can be no gap in the line if both eyes are used at the same time. As soon, however, as one eye does not perform its function there is a black line across the printing matter, so that the words covered by it cannot be seen at all.

This little test may now be used for the following purposes:

To determine whether the patient employs both his eyes in the act of reading, or whether one deviates. If he uses only *one* eye the black line will appear; and if the other eye only deviates it will, on covering the first, read the print also distinctly, but the black line will appear in quite a different position as with the first eye.

To see whether both eyes, after having been made emmetropic for distance, have the same accommodation. For if this is not so, if there is a complete or partial cycloplegia in one eye, there will be certain words on each line that appear indistinct and blurred, though not entirely absent, as before, when one eye was not employed at all.

To detect a malingerer who claims to be blind in one eye. Of course, if he can read a whole line he is convicted.

To make physiologic experiments as to the question of simultaneous unequal accommodation of both eyes, and to study the difference in the retinal images of both eyes, and the heterophoriæ necessarily connected with anisometropia, especially in certain positions of the print.[1]

315 North Sixth Street.

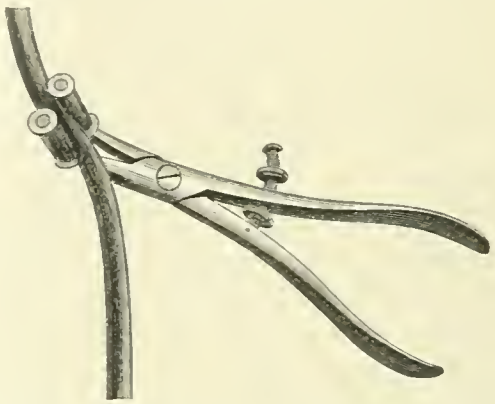
THE TUBE-STRIPPER.

By A. L. BENEDICT, A.M., M.D.,
LECTURER ON DISEASES OF THE DIGESTIVE ORGANS, DENTAL DEPARTMENT, UNIVERSITY OF BUFFALO; CONSULTANT IN DIGESTIVE DISEASES, RIVERSIDE HOSPITAL, BUFFALO.

The instrument to be described was devised in the spring of 1893. Its construction was suggested by the difficulty of removing the stomach-contents through the usual tube. Cases in which expression of the gastric contents is practicable by forcible pressure over the organ are rare, while an attempt to strip the tube with the fingers is tedious and, on account of friction, causes an annoying jerking. At the same time, it is evident that the ordinary aspirators and the rotary surgical pump might cause hemorrhage by too powerful suction.

The instrument consists of the levers of a heavy cutting-forceps. A roller, with flanges to prevent the slipping-off of the tube, is attached at an angle of 105° to each cross-piece of the forceps. The rollers are, of course, parallel, whether the levers are open or shut. An angle a little greater than 90° was chosen, so that the hand would not interfere with the tube as it passes between the rollers. By holding the handles together and running the rollers down the tube the air is forced out, while the elasticity of the rubber causes a vacuum into which the stomach-contents rush. At the same time the suction of an ordinary length of tube is not sufficient to damage the stomach-wall should it be drawn into the openings in the tube, unless some serious ulceration or vascular degeneration exists. In such cases the passage of the stomach-tube would, at any rate, be contra-indicated.

A threaded bar is fitted into one handle of the instrument and passes through an opening in the other handle. A nut with a milled margin is placed on this bar between



the handles, so that exactly the desired degree of compression can be exerted. A second nut outside the handle serves to lock the instrument, although this is seldom necessary.

The instrument has proved satisfactory as an adjunct to the stomach-tube. I have had but one opportunity to test its usefulness in other directions, namely, in a case of pleurisy with effusion. About a yard of rubber tubing was fitted into the end of a simple aspirating-needle, which was plunged into the chest with all aseptic precautions. The tube was stripped with the instrument, an assistant pinching the tube near the canula when it was necessary to reapply the rubber. About 400 c.c. of dark fluid were removed, when the patient began to cough and aspiration was discontinued. It was not necessary to tap again.

The cost of the tube-stripper is about $2.50, so that the entire cost of an aspirating outfit will be less than $5. While too feeble and slow in its action for many of the purposes for which a surgical pump is needed, this instrument has the advantage of compelling extreme caution, and, in many cases it will be found an efficient, simple, and cheap substitute for various expensive aspirators.

A NEW COVER-SLIP FORCEPS.

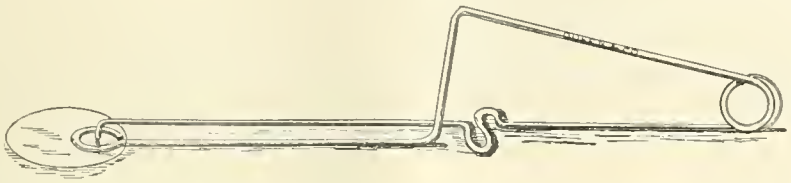
By H. R. GAYLORD, M.D.,
RESIDENT PHYSICIAN IN THE PHILADELPHIA HOSPITAL.

It has occurred to me that there is need of a simple and inexpensive cover-slip forceps. The least expensive forceps of this kind which is satisfactory is retailed at a cost of sixty-five cents, a price somewhat too high to

[1] This test is manufactured by Queen & Co., 1010 Chestnut Street, Philadelphia.

warrant their free distribution in laboratories, where they are likely to be mislaid or lost. It was the necessity of having to share a pair of cornet forceps with two other students which first suggested the forceps here presented. It is simply the development of the bent hair-pin which we have all used.

The forceps is made of nickel-wire, bent in the shape shown, and so constructed that the stain will not "run" on the forceps, and that when placed on a plane surface it stands upright, holding the cover-slip in a horizontal position.



It is admirably suited to "smear-work" of the clinical sort, and can be used even for section-work, although not so well adapted to this use.

The principal claim to be made for the device is the extreme low cost of its manufacture, which adapts it to laboratory-use. If purchased in quantity the expense would be trifling. At present it can be bought for about one-third the cost of the cornet forceps. Messrs. Queen & Co., of this city, have kindly undertaken the manufacture.

MEDICAL PROGRESS.

Hernia of the Bladder.—Rose (*Lancet*, No. 3700, p. 194) has reported the case of a woman, twenty-four years old, who had been the subject of a hernial tumor for three years, and had been anemic for a number of years. The hernia was reducible, but a truss had been worn until three weeks before the woman came under observation, when the hernia became so painful that the pressure of the truss was unbearable. Nine months previously there had set in pain on micturition, and at times the woman had gone twenty-four and thirty-six hours without passing urine; she had an impression that at these times the swelling always increased in size. Micturition had become so painful at times that she had to support the rupture with the hand to secure relief. An ovoid swelling, about an inch long and half an inch wide, was present in the left inguinal region, with its long axis in the direction of the canal, and extended downward and forward toward the center of the left labium majus; there was a distinct though slight impulse on coughing, and at times the swelling became as large as a small hen's egg. When the patient had been gotten ready for operation and was anesthetized, and was placed in the recumbent posture on the table, all trace of the swelling disappeared. An oblique incision about three inches in length was made, with its center over the external abdominal ring, which was clearly defined, but no protrusion was found and no laxity of the abdominal wall felt. At this moment the patient fortunately vomited, and a small protrusion occurred through the external abdominal ring. This was drawn well down, and after clearing the fascia away it was incised. The wall was much thicker than was expected, and a few drops of a straw-colored fluid escaped, which proved to be urine, indicating that the cavity of the bladder had been entered. The wound was at once douched with a 1:40 carbolic lotion, and the vesical incision closed by a double row of fine catgut stitches, which included everything but the mucous membrane. During the necessary manipulations a second attack of vomiting caused the protrusion of a small swelling just external to the preceding one. On laying hold of this the peritoneal membrane gave way and a fine piece of omentum protruded. As this latter was somewhat extensive, it was ligated in successive portions and removed, the stump being returned into the abdomen. The peritoneal sac was now well drawn down, transfixed with catgut and tightly ligated and cut away, the upper part at once retracting within the abdomen. Three deep sutures were now passed through the parietal wound and the canal closed, whilst the external wound was sutured and dressed in the usual way, a drainage-tube being introduced. After the patient had been put to bed a rubber catheter was tied in the bladder and the urine permitted to run off. The first few ounces that passed were blood-stained, but subsequently the secretion came away quite clear, twenty-one ounces being voided in the first fifteen hours. There was no vomiting and the case progressed to convalescence without a hitch. The patient subsequently had one or two slight attacks of retention, although there was no return of the pain or discomfort previously complained of. The cicatrix in the groin became firm, and there was no return of the hernia.

Suture of a Divided Sciatic Nerve.—Dallas-Pratt (*Dublin Journal of Medical Science*, September, 1894, p. 198) has reported the case of a poorly nourished lad, sixteen years old, who came under observation two hours after suffering an injury causing a wound of the right thigh seven or eight inches long close to the fold of the nates, at right angles to the long axis of the member and extending nearly from the middle line on the inside to within a short distance of the middle line on the outside. All of the structures at the back of the thigh were divided down to the femur, including the great sciatic nerve; the wound gaped to the extent of at least five inches. There was comparatively little pain and no hemorrhage. A quantity of machine-black, lubricant, and portions of clothing had been ground into the wound. The lad was at once anesthetized with ether and the wound cleansed with a 1 to 40 carbolic lotion. The ends of the divided nerve were found in a badly lacerated condition, so that it was necessary to remove nearly half an inch of each in order to secure a clean and solid surface to suture. Then it became necessary to stretch the ends until they came together without tension, when they were united by means of three sutures of fine carbolized silk introduced by means of a small needle; two were passed

through the sheath of the nerve on either side, and the third through the substance of the nerve at the center. In the case of all six sutures the distance of the punctures from the cut end was about a quarter of an inch. The muscles were sutured with silk and the skin brought together by means of hare-lip sutures. The surface was dusted with iodoform, a dressing of gauze was applied, and the thigh extended and the leg flexed as much as possible and fixed in that position on a splint. For a few days the patient had some pain, but the wound maintained a good appearance. The only complication was the formation of a number of trophic ulcers on the toes of the affected extremity, which, however, healed without much trouble. After the lapse of eighty days the patient had recovered use of the member sufficiently to be able to walk fairly well; sensation had returned in all parts of the extremity except the dorsum of the foot and toes.

Indications for Thoracentesis.—In an elaborate article, Causade (*Gaz. des Hôp.*, 1894, No. 50; *Centralbl. f. innere Med.*, 1894, No. 34, p. 831) defines the indications for paracentesis thoracis as follows: The procedure is urgently demanded in cases of serous pleuritis, in which the amount of exudate reaches 1800 c.cm. Under these circumstances the upper border of percussion-dulness in the sitting posture is at about the level of the second intercostal space. No time is to be lost in making the puncture, as the presence of this quantity of fluid in the pleural cavity is attended with the danger of sudden death, even in the absence of dyspnea or other alarming symptom. In cases of serous pleuritis complicated by disease of the heart or by pericarditis, in cases of carcinomatous or tuberculous pleuritis, and in cases in which the dyspnea is pronounced, puncture is indicated as a palliative measure, even when the amount of the effusion is not large. The same indication exists in cases of pneumothorax. In the following conditions the indication for thoracentesis exist, though not urgent: (1) In cases of serous pleuritis of protracted course, with elevation of temperature and tardy or failure of diminution in the effusion; in such cases the course of the disease is shortened. (2) In cases of empyema in children, as well as in cases of empyema whose causative microörganisms are on examination found to possess a low degree of virulence; of particularly favorable prognosis are cases of empyema dependent exclusively upon the pneumoniacoccus. (3) It is an open question as to whether or not thoracentesis should be practised in cases of hydrothorax and pneumothorax; in some cases beneficial palliative results will be obtained, but no rigid indications can be laid down.

Chlorosis and Amenorrhea with Symptoms of Brain-disease.—Thomson (*British Medical Journal*, No. 1742) has reported the case of a school-teacher, twenty-three years old, who first menstruated at the age of sixteen and a half years, and was regular until the age of twenty. From this time menstruation had been irregular and scanty, sometimes stopping for as long as three months. For nearly a year there had been general weakness, loss of appetite, headache, giddiness, attacks of vomiting and drowsiness. The headache came on especially after movement, sometimes keeping the patient in bed all day, and also at times preventing sleep at night. The headache was frequently accompanied by severe vomiting, which took place independently of meals and occurred most often in the mornings. Attacks of faintness and giddiness were exceedingly frequent, so that the patient had to seize hold of anything within reach to avoid falling; they came on in bed on turning from one side to another, and mostly ended in vomiting. Sleep was heavy and disturbed by dreams. On one occasion diplopia was present with more or less severity for about four weeks. The face, conjunctiva, and lips were extremely pallid. Objects viewed with the left eye appeared smaller than with the right. Both eyes presented optic neuritis. There was a hemorrhage near the disc in the left eye. Under treatment with iron, strychnin, and aperients there was constant improvement in vision and in the general condition. Subsequently iron and arsenic were given, and the woman progressed to perfect recovery.

A case of chlorosis and amenorrhea presenting symptoms of brain-disease is reported by Burton-Fanning, and one of amenorrhea, presenting similar symptoms, by Jollye in the *British Medical Journal*, No. 1747, p. 1354.

THERAPEUTIC NOTES.

The Medicinal Treatment of Chronic Epilepsy.—As the result of an extended series of observations carried out at the Alabama Insane Hospital, Bondurant (*American Journal of Insanity*, July, 1894, p. 23) arrives at the conclusion that borax, antipyrin, acetanilid, phenacetin, and many other alleged anti-epileptic agents are, save in rare instances, without influence over the course of chronic epilepsy associated with insanity. Beta-naphthol is occasionally beneficial, but probably not more so than catharsis. The bromids will postpone the occurrence of the convulsions, but will in most cases do more harm than good. In dealing with the maniacal attacks seclusion may be necessary. Sedatives should be employed very rarely, if at all. The best single remedy in the *status epilepticus* is bloodletting. Of drugs, the most valuable is chloral.

For the Lubrication of Catheters.—To facilitate the exploration of the urethra and bladder in his wards in the Necker Hospital, Professor Guyon (according to the Paris correspondent of the *Lancet*) is in the habit of using the following formula: Powdered soap, 4 drams; glycerin and water, of each, 2 drams; mercuric chlorid, 1 grain. This ointment is said not to be irritating to the urethra, and to be endowed with much greater lubricating powers than either oil or glycerin.

For the Night-sweats of Tuberculosis.—

℞.—Liq. potassii arsenitis } . āā ♏lxxij.
Tinct. belladonnæ }
Aquæ laurocerasi . . . f ℥j.—M.

S.—Fifteen or twenty drops to be taken at about 5 P.M., and if necessary to be repeated at bedtime.—Skézely, *Sem. Méd.*, 1894, 44; *Corr.-bl. f. Schw. Aerzt.*, 1894, 17.

THE MEDICAL NEWS.

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OF MEDICAL SCIENCE.

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SATURDAY, SEPTEMBER 29, 1894.

A GRADUATE IN CRIME.

THE criminal annals of the State of Pennsylvania do not furnish, so far as we know, the record of a more significant event than the murder just committed at Lebanon by a released convict. It was the triumph of a legalized assassin; the crowning event in a career made possible only in a civilized State. It was a baccalaureate achievement wrought by the hands of a recent graduate in crime. It was done by one who had taken every course, save one, in our tribunals and our jails, and who will doubtless soon receive the final pass for his master's degree at the hangman's hand.

From authentic sources we learn that this convict, GARRETT, was discharged from the Eastern Penitentiary, in this city, on September 12, 1894, after serving a term of four years for a murderous assault on an aged man. On the same day he returned to his home in Lebanon, this State, and on the following morning he murdered his young wife by cutting her throat. He then escaped. He had made threats against his wife while still in the Penitentiary, because it seems she was making a laudable attempt to be divorced from him; and at this writing he is supposed to be still lurking about Lebanon, intending to kill a lawyer and two detectives, whom also he had threatened.

The career of this jail-bird is full of interest. When he was eighteen years of age he was convicted for larceny, and since that time, he being now only twenty-nine, has "figured *eight times* before the County Court, charged with offences ranging all the way from larceny to riot and attempted highway robbery." For his last offence—the assault upon an aged man—he was sent for the short term of four years to the Penitentiary, and thence, his inadequate term having expired and the authorities not having any alternative, he was discharged, to go at large once more and to rob and murder. Not thus would it have been if a rattlesnake or a mad dog had been set loose upon the street. So far as we know, no warning cry was given out when this monster was ejected from the portals of the penitentiary. No one ran ahead calling upon men and women to beware. The *posse comitatus* did not sally forth from Lebanon to annihilate him at the gates. The lawyer and the detectives were not scared. The wife sat peacefully and awaited her doom. Law slept, justice cowered, reason turned away her face, and science, as usual, was ignored. And why? Because this man was under the ægis of the law; in theory a reformed criminal, with the great seal of the Penitentiary on his diploma, with his sentence commuted for good behavior (save the mark!) and the crimes of his past life expiated on bread and water!

We conceive that this whole affair is atrocious beyond the power of pen to write, and disgraceful to civilization almost beyond credence.

As a counterpart of the case here discussed comes the report from England of the murder of a woman by her insane husband, who had been at different times in various insane hospitals and who suffered from homicidal delusions. In spite of the facts the man was released from time to time and permitted to procreate a family of eight children. The woman was delivered of a child about a week before death, but the husband would not allow her to receive medical attention. Besides, there was evidence that the man had severely beaten the woman. In this case the jury that held the inquest rendered a verdict of manslaughter.

The congenital criminal, we know, for science teaches, is beyond reclaim, but he is not beyond salvation. The law makes the fatal mistake of not recognizing him; science makes the equally fatal mistake of recognizing him in too technical a manner. It is unwisdom in the law to cling to an

exploded theory of crime and an antiquated procedure for "punishing" it; but it is useless for science to merely formulate that "atavism has hurled the congenital criminal back thousands of years and has placed him beside his pithecoid ancestor." We need something more enlightened than such law; something more universally intelligible than such science.

For, as we have said, the congenital criminal is not beyond salvation; but first of all he needs salvation from himself. He is not fit to be a social unit, nor even to be a unit unto himself. The State must step in and possess him. He is not to be "punished," but to be appropriated. The stigmata of degeneracy, of a fatal heredity, are upon him. If the law is not satisfied with the teaching of science, let the courts demonstrate the facts. Let them convict once, and then twice, and then thrice—and then, if it be not too late, let the State step in and settle the matter forever. We contend that an incorrigible criminal must be isolated for the term of his natural life, and that this is not only better for society, but is more humane for him.

Are our jails the universities of crime, and are our courts their preparatory schools? Was not Buzzard, the Lancaster brigand, "converted" in the penitentiary, and then discharged to prey (not pray) at his leisure? He is now convicted again; lucky, perhaps, that he has not killed someone, and ready once more to receive grace and disgrace at Cherry Hill. He doubtless will be graduated again—and then let all who are concerned beware!

We do not raise here the question of insanity, although it is inextricably interwoven with this subject of inveterate criminality. This malefactor Garrett, we are credibly informed, was not believed to be insane while in prison; in fact, he had reason to suspect his wife's fidelity. Neither do we reflect upon the officials at the Penitentiary, who have no authority to detain a convict whose sentence has expired. But we condemn without measure a system of criminal jurisprudence which is responsible for such a crime.

EDITORIAL COMMENTS.

The Anti-Opiate Society of America is the name of an association formed in New York City for the laudable purpose of using such means as may from time to time be considered best to prevent the unnatural use and the abuse of such drugs as opium and its derivatives, cocain, chloral, and other drugs whose use is both pernicious and injurious.

The means now being used by the Society to attain this end are as follows: 1, the calling of public attention to the enormity of the evil; 2, the free dissemination of leaflets, pamphlets, books, and other literature bearing on the subject; 3, agitation of the matter in the press of the country; 4, efforts to secure legislative enactments regarding the sale of the drugs and preventing indiscriminate traffic therein; 5, also the enforcement of such laws when made.

Some States possess laws prescribing the manner in which opiates may be sold and used, but very few of these laws are enforced.

According to reliable statistics there are at present in the United States 1,500,000 men and women who habitually use opium in some of its forms, while twenty years ago there were less than 300,000 opium-users in the same territory. It is said that in the city of Chicago 25,000 persons are addicted to the habit, in New York City over 50,000, and in St. Louis about 20,000. The amount of money expended in this connection will reach millions of dollars.

It is the object of the Anti-Opiate Society to reach especially such persons as are unfamiliar with the powers and dangers of narcotic drugs, and among other things to point out that the morbid craving is in many cases the result of the use of patent medicines, soothing syrups, and cough-mixtures, most or all of which contain opium.

The Society earnestly solicits the active coöperation, in word and deed, of all who desire to aid in its objects. It is the first of its kind, and deserves the warmest encouragement and support. It is maintained entirely by voluntary contributions. W. Ten Eyck Hardenbrook, No. 128 West Sixty-seventh street, New York City, is the Secretary.

The Iron Process of Water-Purification.—In view of the agitation in favor of the filtration of public water-supplies, it is opportune to call attention to a method that is both interesting and efficient. Experiment indicates that iron and its oxids have much influence in the destruction of organic matter, living and dead. Some iron oxids make excellent filtering material. Spongy iron produced by heating certain ores in reducing gases has long been known to be an efficient agent for removing microbes and dissolved organic matter from water, but it fails completely in time. It was an ingenious suggestion of an English chemist some years ago that the function of the iron might be restored by constantly agitating it so as to maintain a fresh surface. Experiments finally led to the invention of a simple, efficient, and economical method of purifying water. Scrap-iron in the form of turnings or punchings are placed in an iron cylinder which slowly rotates on a horizontal axis, while the water passes through in a steady stream. The iron is converted into ferrous carbonate, which on exposure to the air (in a trough through which the water flows upon its escape from the cylinder) is converted into ferric oxid, to which both dead organic matter and living microbes adhere. On filtering the turbid water through sand, a clear and wholesome filtrate is obtained. The presence of the iron oxid enables more rapid filtration to be carried out and involves less filter-cleaning. The iron would quickly become inert if allowed to lie in the water, but the constant rolling keeps the surface clean and active.

This process is now in successful operation at Antwerp, where the original water is of very bad quality, and at Paris, operating on Seine-water. A successful experimental plant was also operated on Schuylkill-water some years ago.

Air-borne Infection.—The *Provincial Medical Journal* discusses at some length the possibility of infection of meat through the practice of carrying it through the streets uncovered. It admits, of course, that cooking must get rid of almost, if not all, the microbes that may lodge thereon, but the question of infection carried through the air is one of much wider scope than the lodgment of microbes on a few articles of food. In cities the streets are almost entirely paved with non-absorbent materials, and unless such surfaces are flushed frequently and thoroughly, and in the intervals of flushing constant cleaning is maintained, much dust will be produced. It is generally admitted that tuberculosis is frequently, perhaps principally, transmitted by the inhalation of the fine powder into which is ground sputum indiscriminately ejected in public places, and modern investigation has shown that the most virulent microbes are found in the discharges from the intestines, and the fact that our common domestic animals, especially the horse, discharge their excreta freely on our streets, must render the dust of cities dangerous. It may some day be shown that this dust is a distributer of various skin-affections and some of the contagious febrile diseases. Exact investigations by several competent observers have shown that sewer-gas is not a carrier of germs, and that there is little reason to ascribe to it a direct causation of disease; but we doubtless much underrate the dangers that lurk in the pulverized filth that is raised in clouds on our streets.

Are Negroes and Brunets Peculiarly Subject to Electric Retinitis?—Dr. James P. Parker, of St. Louis, Mo., in a private letter writes that he has had a number of cases—thirteen up to the present time—of electric retinitis in negroes or dark-skinned persons, and he believes that this affection will not be found in those of blond type. He finds that the incandescent light has a peculiar effect upon the negro and the brunet, and that when such people suffering from this effect come to the physician, the latter fails to recognize the retinal injury on account of the very evident conjunctivitis. The changes in the retina consist in an increased pigmentation of the central or macular region, together with lessened visual acuity, hyperemia, etc., and occur, not immediately after the patient complains of conjunctival and other symptoms, but follow only about ten days after this time. Dr. Parker thinks that the impairment of vision will be permanent in all these cases. The greater the natural pigmentation of the retina the more disastrous the result. We make mention of this observation here in order that others may be on the lookout for similar cases and that the truth may be ascertained by a number of different clinicians.

First Care of the Newborn.—Dr. Th. S. Egge, of Moorehead, Minn., informs us that while travelling in Norway a few years ago, at a time when the nights were cold and foggy and the landscape was covered with a heavy frost, the stones and banks of the numerous creeks and brooks presenting a coating of ice, he found a gypsy woman bathing in a pond her child born but three hours previously. On being remonstrated with, the woman explained that it was the custom among the parturient women of the community of which she formed a part to wash their newborn for the first time in cold, running spring water, with the idea of training the children from infancy to withstand the buffets of a cold and unsympathizing world. The contention was that if the child should die as the result of this early exposure it was just as well, as it would otherwise die early at any rate. The practice is said to be common among the Laps and Finns.

CORRESPONDENCE.

THE MARRIAGE OF SYPHILITICS.

To the Editor of The Medical News,

Sir: For the purpose of securing reliable statistics on the subject of the marriage of syphilitics I desire to enlist the assistance of those of your readers who have had experience that will be of value in determining the period when this disease ceases to be communicable and inheritable. I shall, therefore, esteem it a great favor on the part of any physician who will send me answers to the following questions. Due credit will be given in a future publication to those who aid me in this work.

1. What is the latest period from the date of the initial lesion that you have known the disease to be communicated by a patient who has been from the first under your observation?

2. What is the latest period from the date of the initial lesion that you have known (*a*) a syphilitic man or (*b*) a syphilitic woman become the parent of a syphilitic child?

3. Have you ever known syphilis to be either communicated or handed down, at a later period than four years from the date of the initial lesion, by an individual who has been constantly under your observation during that time?

In answering these questions I should like a brief but complete history of each case and an account of the treatment that has been pursued.

I hope by this means to obtain the experience of a large number of observers and to reach a fairly reliable conclusion as to the time when we may safely permit our syphilitic patients to marry.

Yours, very truly,

Burnside Foster.

St. Paul, Minn.

NEWS ITEMS.

The Collection and Preservation of Anatomic Material.—At the last meeting of the Association of American Anatomists, J. Ewing Mears, Thomas Dwight, and Joseph D. Bryant were appointed a committee to "consider the question of the collection and preservation of anatomical material, and to report at the next meeting what in their opinion are the best means of accomplishing these objects."

In order to make the work of the committee as comprehensive as possible, and to obtain information which will be of service in arriving at definite conclusions as to the best methods of accomplishing the purposes indicated in the resolution, the committee has deemed it desirable to send to the teachers of anatomy, not only in

this country, but abroad, this circular-letter, with the questions appended, and respectfully to request answers thereto, as fully as they can be made.

1. Is anatomical material obtained in accordance with a legal enactment, wholly or in part?

2. If there is an anatomical law in your country or State, please send a copy of it to the chairman of this committee, Dr. J. Ewing Mears, 1429 Walnut street, Philadelphia, Pa. Please state whether the law is satisfactory, whether it is readily obeyed by those upon whom duties are imposed by it, and mention any improvements you would suggest as to its requirements.

3. Is the material received in good condition?

4. What disposal is ultimately made of the remains?

5. Please state what means are employed to preserve anatomical material for the purposes of dissection or operative surgery. If injections of preservative fluids are used, state their composition and the methods of use, at what point injections are made, whether at the heart or in the larger arteries, and their effect in accomplishing the preservation, with any changes in the color or character of the tissues. What length of time can material be used in dissection by the methods employed by you? If preservation by means of "cold storage" is employed, please state the cost of the machinery which it was necessary to construct for this purpose, and what means are taken to prevent decomposition after the subject is placed upon the table for dissection.

6. Please state the cost, by the method employed by you, for each subject, (*a*) for receiving it, (*b*) for injecting and preserving it.

7. Do you obtain an adequate supply of material for the purposes of anatomical instruction? How many students are assigned to each subject, and what is the method of allotment?

8. Please give any information which you may deem of importance. As the report will be general in character the name of the informant or institution will not be mentioned by the committee unless requested.

Your compliance with the request of the committee *at an early date* will be fully appreciated as rendering assistance to it in accomplishing its work, and it desires to thank you for the same in advance.

Meetings of Philadelphia Medical Societies:

	Meets.	Next meeting.
Academy of Surgery,	1st Monday of month, Oct.—June.	Oct. 1
College of Physicians,	1st Wednesday of month, Sept.—June.	Oct. 3
Section of Ophthalmology,	3d Tuesday of month, Sept.—May.	Oct. 16
Section of Orthopedic Surgery,	3d Friday of month, Oct.—April.	Oct. 19
Section of Otology,	1st Tuesday of month, Oct.—May,	Oct. 2
Section of Surgery,	2d Friday of month, Oct.—May.	Oct 12
County Medical Society,	2d and 4th Wednesdays of month, Sept.—June.	Oct. 10
Neurological Society,	4th Monday of month, Oct.—April.	Oct. 23
Obstetrical Society,	1st Thursday of month, Sept.—June.	Oct. 4
Pathological Society,	2d and 4th Thursdays of month, Sept.—June.	Oct. 11

Meetings of State and National Medical Societies:

	Meets.	Next meeting.
American Academy of Medicine.	May, 1895	Baltimore.
American Association of Genito-urinary Surgeons.	May 28–31, 1895	Washington, D. C.
American Medical Association	May, 1895	Baltimore.
Association of Military Surgeons of the United States.	May, 1895	Buffalo, N. Y.
British Medical Association.	July 30–Aug. 2, 1895	London, England.
Illinois State Medical Society.	May 21, 1895	Springfield, Ill.
International Congress of Dermatology.	July 31–Aug. 4, 1895	London, Eng.
International Medical Congress.	August, 1896	Moscow, Russia.
Medical Association of the State of Alabama.	April 16–19, 1895	Mobile, Ala.
Medical Society of the State of California.	April 16, 1895	San Francisco, Cal.
Medical Association of Georgia.	April 17, 1895	Savannah, Ga.
Medical Society of the State of New Jersey.	June 25, 26, 1895	Cape May, N. J.
Medical Society of the State of New York	Feb. 5, 1895	Albany, N. Y.
Medical Society of the State of Pennsylvania.	May 21, 1895	Chambersburg, Pa.
Medical Society of the State of Tennessee.	April 9, 1895	Nashville, Tenn.
Medical Society of Virginia.	October 23	Richmond, Va.
Medico-Legal Society.	Dec. 12	New York.
Mississippi Valley Medical Association.	Nov. 20–23	Hot Springs, Ark.
New Hampshire Medical Society.	May 30, 31, 1895	Concord, N.H.
New York State Medical Association.	October 9–11	New York City
Ohio State Medical Society.	May 15, 1895	Columbus, O.
Southern Surgical and Gynecological Association.	Nov. 13–15, 1894	Charleston, S. C.
Texas State Medical Society.	April 23, 1895	Dallas, Tex.
Tri-State Medical Society.	October 9–11	Atlanta, Ga.
Tri-State Medical Society.	October 2, 3	Jacksonville, Ill.
Vermont State Medical Society.	October 11, 12	Montpelier, Vt.

Dr. Theophilus Patterson died September 12, at Salem, N. J., after having been engaged in the practice of medicine for nearly forty-six years.

BOOKS AND PAMPHLETS RECEIVED.

U. S. Department of Agriculture. Report of the Microscopist for 1892. By Thomas Taylor, M D. From the Report of the Secretary of Agriculture for 1892.

U. S. Department of Agriculture. Division of Microscopy. Food-Products. II. Eight Edible and Twelve Poisonous Mushrooms of the United States, with Directions for the Culture and Culinary Preparation of the Edible Species. By Thomas Taylor, M.D. Reprinted from the Report of the Secretary of Agriculture for 1890.

U. S. Department of Agriculture. Division of Microscopy. Food-Products. III. 1. Improved Methods of Distinguishing between Pure and Fictitious Lard. 2. Four Edible Mushrooms of the United States. By Thomas Taylor, M.D. Reprinted with Revision from the Report of the Secretary of Agriculture for 1891.

Temperature in Uremia. By Donnel E. Hughes, M.D. Reprinted from the Philadelphia Hospital Reports for 1892.

The Aseptic Dressing of the Umbilical Stump. By Joseph Eve Allen, M.D. Reprinted from the American Journal of Obstetrics, 1894.

A Modern Wizard. By Rodrigues Ottolengui. New York and London: G. P. Putnam's Sons, 1894.

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ORIGINAL ARTICLES.

THE EMPLOYMENT OF CENTRIFUGAL FORCE AS AN AID TO THE EXAMINATION OF SPUTUM.

BY THOMAS G. ASHTON, M.D.,

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AND

A. H. STEWART, M.D.,

CLINICAL ASSISTANT IN THE OUT-PATIENT MEDICAL DEPARTMENT IN THE JEFFERSON MEDICAL COLLEGE HOSPITAL.

To facilitate the examination of sputum for tubercle bacilli, and to render more conclusive such examinations when but few bacilli exist in a given specimen of sputum, as well as to offer a substitute for the complicated methods now in vogue for the detection of fibers of elastic lung-tissue, are the objects of the present paper. When sputum contains tubercle bacilli in but scanty numbers it frequently happens that repeated examinations are necessary before their presence can be satisfactorily demonstrated; and even then their existence at times fails of detection, as will presently be shown, when by the aid of the centrifuge that they exist in such sputum can be readily made clear.

So also the application of centrifugal force, in the manner about to be described, to the detection of elastic fibers will be found a great improvement over the present methods. For this purpose at present the plan most generally adopted is that advocated by Fenwick, which consists in boiling the sputum in a dilute solution of caustic potash, then allowing it to settle for twenty-four hours, and examining the sediment for elastic fibers under the microscope. To those who are in the habit of employing this method it is not necessary to call attention either to its complications or to the uncertainty of its results, both of which render its employment practically useless in the ordinary routine of clinical work. Nor is the simpler method advocated by von Jaksch, of adding some potash solution directly to the sputum as it is placed upon the slide, with the object of dissolving the pus and allowing the elastic fibers to be seen, to be any more strongly recommended, as it is open to the chief objection that characterizes Fenwick's method, viz: its uncertainty, and the number of examinations usually necessary before, if at all, the elastic fibers can be found.

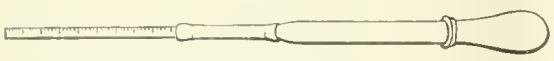
The observations about to be described were made from sputa taken from patients presenting themselves at the out-patient medical department of the Jefferson Medical College Hospital; and because in the present paper it is desired to describe the effect of centrifugation only as it may apply to the tubercle bacillus and elastic fibers of lung tissue, none other than tuberculous sputum is included. This is done, too, notwithstanding that sputa belonging to other diseases of the lungs have been similarly treated, as, for example, the sputum from cases of bronchial asthma, in which we have found that Charcot-Leyden crystals and the spirals of Curschmann can also be very readily demonstrated.

The mode of procedure is as follows: The instrument utilized to produce the required centrifugal force is a machine made by F. F. Metzger, of Philadelphia, under the direction of Judson Daland, as a modification of the hematokrit of Blitz-Hedin, with the difference that the caliber of the glass tube in which the precipitation is to take place is two-and-one-half millimeters in diameter, instead of one-half millimeter, as is the case with the hematokrit. In both instruments the length of the tube is the same, about fifty millimeters. Inasmuch as the greater the number of revolutions of the precipitating tube we are able to produce in a given time so much less time will be required in the manipulations, thereby simplifying the procedure, the machine made by Metzger is advocated, as no instrument yet brought to the attention of the writers has been found to approach it in speed. Though as yet untried, the force derived from a small electric motor might be utilized with advantage for the purpose of furnishing the necessary power for the operation of the centrifuge.

The preparation of the sputum before placing it in the precipitating tube is extremely simple. A small quantity is placed in a porcelain dish, and actively stirred for a few moments with a glass rod. Under this treatment the sputum soon becomes, without the addition of any diluting fluid, a thin liquid, free from lumps, and apparently of homogeneous character. The precipitating tubes are then filled, the sputum being drawn into them by means of rubber tubing having attached to one end a small rubber bulb to produce the necessary suction. We have used for this purpose an ordinary medicine-dropper with its attached bulb, inserting the nozzle end of the dropper into the end of the

rubber tubing, the other end of which is applied over the end of the precipitating tube. This method has been adopted to render unnecessary suction by the mouth which, were there no other reasons why it should not be resorted to, might not be free from danger in the case of tuberculous sputum. For the purpose of elucidation a drawing of this simple apparatus is given, and so easy of application is this method that its use has been resorted to for the drawing up of the blood into the precipitating tube of the hematokrit, as it has been found that the column of blood is thus more susceptible of control than it is with mouth suction.

Fig. 1.



Medicine dropper attached by rubber tubing to precipitating-tube.

The two precipitating tubes filled with sputum thus prepared are now placed in the centrifuge, and rapidly revolved for at least two minutes. With a speed of ten thousand revolutions per minute, which is easily attained by the improved apparatus made by Metzger, two minutes is quite time enough to produce complete precipitation of the more solid portions of the sputum, along with which, as shall presently be shown, go the objects of our search.

Precipitation thus having been accomplished, to the unaided eye the sputum will be found to have separated into two layers; that at the distal or peripheral end of the tube being yellowish or greenish in color; that at the proximal or central end appearing as a slightly turbid, almost transparent watery fluid, which by the microscope is found to contain no cellular elements whatsoever. In the peripheral end of the tube, however, the microscope reveals, closely packed together, but their integrity not in the least impaired, the various forms of epithelial cells and pus cells contained in the sputum. The more purulent is the character of the sputum, the greater the amount of desquamation of epithelium, of course the greater will be the depth in the precipitating tube of the purely cellular portion of the sputum—an observation possibly not without its value.

Undoubtedly the most important evidence that a destructive process is taking place in the pulmonary structure is to be found in the discovery of elastic fibers in the sputum. With obscure symptoms and signs pointing to a pulmonary tuberculosis, their significance is even greater than the presence of tubercle bacilli, unless in large numbers, as bacilli may be found in sputum when the lungs are in no wise diseased. The finding of elastic fibers is positively indicative of destruction, and the other destructive diseases of the lungs, such as bronchiectasis and pulmonary abscess, are not by their symptomatology likely to be confounded with tuberculosis. Pulmonary gangrene is not here classed with diseases of the lungs characterized by destruction of the lung-tissue, and to be compared with tuberculosis, because, as was first pointed out by Traube, the sputum expectorated in cases of pulmonary gangrene rarely contains elastic fibers, for the reason that they are probably completely destroyed within the gangrenous area. Therefore, the presence of elastic fibers in the sputum, with signs and symptoms pointing to pulmonary tuberculosis, even though these be obscure, and even though the presence of the tubercle bacillus may not be demonstrated, would clearly establish the diagnosis of pulmonary tuberculosis. Hence, that which will supplant the complicated and uncertain method of Fenwick, or the somewhat less complicated but none the less uncertain method of Von Jaksch for the detection of elastic fibers, cannot fail to be of great practical value when the importance of the subject is taken into consideration.

From the large number of observations we have made, now amounting to many hundreds, it has been definitely demonstrated that elastic fibers are precipitated by centrifugal force in the largest numbers to the very extremity of the peripheral end of the precipitating tube. The sputum occupying this portion of the tube, when rich in cellular elements, is found to be quite thick in consistence, and is usually extruded as a mold of the interior of the tube. Without any dilution, or any means for the solution of the pus cells, a small portion of this sputum taken from the periphery of one of the tubes—the contents of the other tube being reserved for the examination for tubercle bacilli—is spread somewhat thinly upon a slide, the cover-glass being pressed down to effect its equable distribution. Examined in this way, if the sputum contain any tissue its presence cannot fail of discovery. Examining the contents of the precipitating tube throughout its entire extent for elastic fibers, they are found to rapidly diminish in numbers as we pass from the periphery; and this is found to be the case even when the sputum contains lung-tissue in abundance, as was clearly demonstrated in one case especially, in which in the first slide were discovered ten separate collections or bundles of fibers, while in the second slide but three were found, and in the third but one, none being found beyond the third slide. The bundles of fibers were much larger in the first slide. In the thin, watery portion of the sputum, or that which remains after the precipitation of the cellular and other solid elements, elastic fibers are absent altogether. Elastic fibers examined by this method do not differ in appearance from those found after the methods usually practised for

their detection, and the accompanying drawings of collective fields of sputum taken in succession, beginning at the peripheral end of the precipitating tube and proceeding toward the central end, present good illusrations both of the appearance of the cast-off lung-tissue and its relative frequency in the slides, as the examinations take place away from the periphery of the precipitating tube.

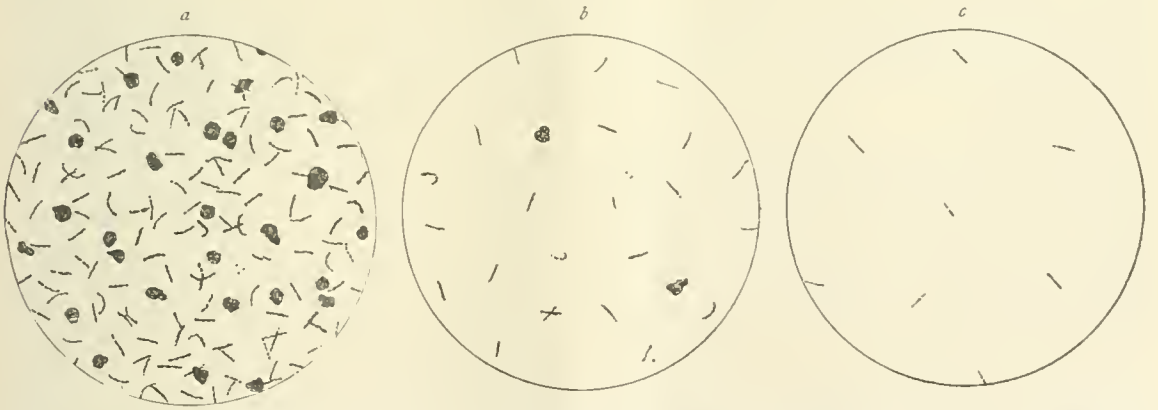
FIG. 2.

Elastic fibres. D objective, ZEISS. *a*. Slide prepared from extreme periphery of precipitating tube. *b*. Collective field from a slide taken 5 mm. from peripheral end of tube. *c*. Collective field from a slide taken 1 cm. from peripheral end of tube.

It is the experience of everyone accustomed to examine sputum for the tubercle bacillus that in those cases in which the number of bacilli is very small the result of the examination is often disappointing, and a number of such examinations have to be made before the presence of the bacilli can be demonstrated. Indeed, cases are not infrequently met with in which bacilli are not found in the sputum even after repeated examinations, and yet such cases will have presented well-marked evidences of pulmonary tuberculosis.

By centrifugal force, together with the pus cells and the various forms of epithelium, the tubercle bacilli are carried along. Thus it is that they are found in greatest abundance at the peripheral end of the precipitating tube. Centrifugal force does not separate them and assign them a place of their own, but they rather share the fate of the cellular elements of the sputum, which therefore carry the bacilli along with them. Hence it is, that with the bacilli as with elastic fibers, as we pass from the peripheral toward the central end of the precipitating tube they are found to rapidly diminish in numbers, until when the watery portion of the sputum is reached their presence fails of demonstration. That this is the case and the extent to which it is so, the appended drawings of slides prepared and stained from different portions of the tube will clearly show.

FIG. 3.



Tubercle bacilli. Homogen. immers. $\frac{1}{12}$, ZEISS. *a*. Slide prepared from extreme periphery of precipitating tube. *b*. Slide taken 5 mm. from peripheral end of tube. *c*. Slide taken 1 cm. from peripheral end of tube.

The value of centrifugal force as an adjunct to the examination of sputum for tubercle bacilli when they exist in only few numbers can scarcely be overestimated. Again and again have our observations demonstrated to us the facility whereby in such cases the presence of bacilli can be discovered by the aid of centrifugation, and in cases, too, in

which at the same time they were found only after much trouble and repeated examinations by the ordinary methods. This was especially noticed in a case in the wards of the Jefferson Medical College Hospital, which presented well-marked signs of advanced pulmonary tuberculosis, among them being the physical signs of a large cavity below the left apex anteriorly. In August, 1894, this case died, and the autopsy fully confirmed the diagnosis of pulmonary tuberculosis. The sputum of this case had been examined repeatedly by the ordinary methods, not only by ourselves but also by others expert in making sputum examinations, and at no time were bacilli found; and yet in this very case, by the aid of centrifugation bacilli were found in the sputum at the first examination, the number being very few.

In the course of these observations we have tried various ways of previously diluting the sputum, and have also considered the advisability of endeavoring to secure the solution of the pus corpuscles, thinking that by these means the tubercle bacilli and the elastic fibers would be more closely collected together.

We also subjected sputum to a series of examinations according to the method advised by Biedert, which, as described by Von Jaksch, consists of the following procedures: "Ten to twenty cubic centimeters of the sputum are boiled in a watch-glass with a little dilute caustic soda; water is added, and the mixture again boiled until it is thinly fluid. It is then allowed to stand in a conical glass for two or three days, after which the sediment is added to a small quantity of egg-albumin, and examined for bacilli in the usual manner." Instead of allowing two or three days for sedimentation, the mixture was at once subjected to centrifugation, but the result was far from satisfactory.

In this connection reference should also be made to the method recently described by Ilkewitsch (*Centralblatt für Bakteriologie und Parasitenkunde*, Feb. 5, 1894, Bd. xv, Nos. 5, 6, p. 162), the preliminary procedures of which consist in mixing with a half cubic centimeter of sputum in a porcelain dish twenty cubic centimeters of distilled water. To this are then added eight to twenty drops of a 30 per cent. solution of potassium hydroxid, and the mixture warmed until vaporization occurs, until which time it is constantly stirred. Under the influence of the heat and the potassium hydroxid, complete solution of the sputum is supposed to take place, at which time a small amount of casein is added to the mixture and dissolved. The fluid is then poured into a test-tube and acetic acid added, drop by drop, until the first sign of coagulation of the albumin is observed. The liquid is then placed in the cylinder of the centrifuge and rotated until separation of its elements takes place. When the separation has occurred a small ball suspended by a thread is lowered into the cylinder upon the collected sediment, and the superimposed fluid allowed to flow out. The sediment is then treated according to the special method which it is the object of the paper of Ilkewitsch to set forth.

In the course of our work upon the subject we found that dilution of the sputum as a preliminary measure to centrifugation is not only unnecessary, but interferes materially with the success of the examination, as it lessens the actual amount of sputum precipitated and diminishes the number of bacilli and elastic fibers available for observation, as well as increases the difficulty of staining. It is further rendered unnecessary because the sputum, by the process of trituration as above described, is rendered sufficiently fluid for proper manipulation; indeed, such sputum, even though abundantly rich in cellular elements, after centrifugation is found to be composed of more than one-half water.

The same objections apply to the various methods resorted to for causing a solution of the sputum, and it seems to us that such methods as those advised by Biedert and Ilkewitsch needlessly complicate what should be only a very simple process. The object of both of these methods is especially directed to the collecting together of bacilli, from sputum containing them in but scanty numbers, within a limited space. For accomplishing this purpose that method which is the simplest in its details, and which requires but a very few moments for its completion, provided that its object is effected with the same precision as by the more complicated means, is the method that will prove most practicable in the routine of clinical work. Furthermore, other things being equal, why should methods that are both complicated and time-consuming be followed when one presents itself in which both these objections are lacking? That we are not overestimating the value of the simple method just described, we think we have abundantly proved.

In looking into the literature of the subject we find but few references to the adaptation of centrifugal force to sputum examination, and the few obtained refer only to the precipitation of tubercle bacilli, and nowhere do we find recorded any observations upon the effect of centrifugation upon elastic fibers. We therefore feel that the observations made in the present paper, so far as they refer to this part of the subject at least, are original.

In conclusion we would say that, as a result of the above investigations, in the centrifugal machine we possess a very important adjunct to the present methods in use for the examination of sputum. Nor in its adoption will clinical medicine be burdened with a new instrument, as the centrifuge has

so many well-demonstrated uses that in any clinical laboratory its presence is indispensable. In the form of the hematokrit its value is now acknowledged, and as a means for procuring the sedimentation of urine it possesses sufficient importance to warrant its possession were that the sole claim for its adoption; and, finally, that it is of practical value in the examination of sputum has been conclusively proven in the clinical laboratory of the out-patient medical department of the Jefferson Hospital, where for the past six months the routine examinations of sputum have been conducted with its aid.

PAINFUL GASTRIC NEUROSES: THEIR DIAGNOSIS AND TREATMENT.

By ALLEN A. JONES, M.D.,
CLINICAL INSTRUCTOR IN MEDICINE AND INSTRUCTOR IN PRACTICE, MEDICAL DEPARTMENT, UNIVERSITY OF BUFFALO.

(Continued from page 346.)

Diagnosis.—In order to arrive at a diagnosis of a painful gastric neurosis it is necessary to exclude gastric and duodenal ulcer, carcinoma, and other organic disorders of the stomach, biliary colic, chronic pancreatitis, acute pancreatic hemorrhage, rheumatism of the abdominal walls, referred pain from renal colic or appendicitis, and intercostal neuralgia.

It is by no means always an easy task to differentiate between some of these affections and nervous gastralgia. I have already spoken of the difficulty that may attend the distinction between gastric pain in chlorosis accompanied and unaccompanied by ulcer. If HCl is present in excess, with vomiting of blood, and sharp boring pain be localized to one small spot in the epigastrium, a little to the right of the median line, and shooting through to the back, the diagnosis of ulcer is justified. On the other hand ulcer may exist without any of these stigmata, so that all manner of obstacles may be thrown in the way of a clear diagnosis. Duodenal ulcer is more frequent in men between thirty and forty years of age, and is generally accompanied by vomiting of dark, changed blood and profuse bloody stools. HCl in excess is the rule in this affection, as it is in gastric ulcer. Gastric carcinoma may be present without coffee-ground vomitus, and without distinguishable tumor, but if these are present in a person of advanced years, and if there is a persistent absence of free HCl, with a steady failure of strength and loss of weight, a diagnosis of carcinoma may be made. Yet in two cases of severe gastralgia in women, first seen three years ago, the diagnosis was for many months in grave doubt, owing to the fact that both were well on in years; both gave a history of pain, vomiting and loss of flesh, and in both there was a continued absence of HCl, with retarded motion. After some months of treatment HCl appeared in one case, and the gastric chemistry thereafter remained fairly good. In the other case HCl was found but once. Both patients were relieved by the intra-gastric application of the galvanic current, and are better to-day than they were three years ago.

Biliary colic is distinguished from neuro-gastralgia by a history of gall-stones, pale stools, perhaps icterus, and bile-stained urine. Nevertheless perplexity may arise in this connection. About a year and a half ago a healthy-looking man, about forty years of age, presented himself, suffering with severe pain that he referred to his stomach. Upon direct examination I found good digestion, with a copious supply of HCl. Lavage and gastric sedatives gave him relief. He went to California, and was well while there. Upon his return to Buffalo he again had a severe attack of pain referred to the right epigastrium. The pain was tearing, gnawing and intolerable. The intra-gastric conditions were again found normal. The pain continued in spite of ordinary remedies, and he was sent to bed. Morphin alone gave relief, and in a few days moderate jaundice developed. Recovery took place some days later. No biliary calculi were found in the stools, nor were the latter noticeably pale. A similar case in the person of a healthy man of about the same age came under my observation last autumn.

Chronic interstitial pancreatitis is accompanied by emaciation, vomiting, glycosuria, fatty stools, epigastric pain, and occasionally salivation and lipuria. Acute pancreatic hemorrhage is usually accompanied by symptoms of profound shock, and death soon follows.

Rheumatism of the abdominal walls may be noted by tenderness upon movement, somewhat as motion is painful in lumbago.

Referred pain from renal colic will usually be attended with manifest nephralgia and the urinary condition incident to that disease, together with a history of nephritic colic. Appendicitis will be discovered if the temperature is taken and the region of the appendix examined. Intercostal neuralgia will be detected by the presence of the tender points of Valleix.

The treatment of neuro-gastralgias aims to stop the pain in the first place, and in the second place to remove the causative elements in the case. When it is possible to apply lavage with water at a temperature of about 110° F. during an attack of severe gastralgia very great relief often follows, and sometimes the pain ceases at once. The direct application of the galvanic current to the walls of the stomach acts in some cases like a charm in dispelling the pain. The positive pole should be used inside of the stomach and the strength of the current should be from four to twenty milliampères. If the gastric

contents are of a high total acidity large doses of sodium bicarbonate or light magnesium carbonate frequently afford relief. As a local sedative in gastric hyperesthesia, a combination of cerium oxalate, or bismuth with magnesium carbonate, is usually very efficacious as a remedial agent. Occasionally one-eighth grain of cocain in tablet or in solution allays even severe pain. Chloroform or chloroform-water is also useful during an attack. A dessert-spoonful of smooth whiskey or brandy sometimes gives relief. Hoffman's anodyne has not proved satisfactory in my experience. Dilute hydrocyanic acid in five-drop doses is very effective in some cases. Cannabis indica, combined with belladonna, aconite, or hyoscyamus, lessens the pain in a few cases. Antipyrin, phenacetin, and acetanilid have not proved valuable remedies in gastralgia. Occasionally a twenty-grain dose of quinin sulphate will cut short an attack. Finally, morphin hypodermatically, may be necessary in the event of failure with other measures.

Other procedures are often helpful in the treatment of an attack of gastralgia. Sponging the spine with water as hot as the patient can bear appears to give some comfort. The old-time hot fomentations upon the epigastrium, or a mustard plaster, assists in quieting the patient and the pain. The application of hot and cold water thrown alternately in a fine jet upon a small spot on the epigastrium is useful. A hot enema sometimes gives relief from gastralgia, as it does from enteralgia.

The treatment of the condition underlying painful gastric neuroses involves the removal of the cause as far as is possible in a given case, while local treatment of the stomach is frequently to be carried out together with careful attention to the general nervous state of the patient.

If the case be one of neurasthenia all possible sources of reflex disturbance ought to be eliminated if practicable. If the patient be a so-called lithemic, or if the kidneys are sluggish, active elimination by way of the bowels and skin should be effected. The diet should in each case be regulated according to the gastric chemistry. Constipation should be effectually overcome. Massage, exercise, general faradization, and the various uses of cold water for its tonic effect, are all beneficial in many cases in improving the blood and the nervous tone.

Among the drugs that may be used with advantage for the purpose of improving the innervation of the stomach as well as improving the general condition of the patient, nux vomica or strychnin is of great value. Strychnin is a good blood-maker by stimulating the functional activity of the digestive organs and the hematopoietic apparatus. In the milder forms of gastric pain and discomfort after eating, good-sized doses of nux vomica or strychnin sulphate very often suffice to do away with the pain. Phosphorus and arsenic are often well tolerated by these patients, and are very useful. In a few cases of moderately severe gastralgia five-grain doses of quinin sulphate night and morning have been successful. Iron should be used if indicated, as the mere existence of neuro-gastralgia is no contra-indication to its use. Asafetida in emulston is a drug of signal service in hysterical cases, especially when nervous belching is a marked symptom. In some mild cases a mercurial purgative followed by Carlsbad salts in the morning, and thereafter, for a while, by the daily exhibition of Carlsbad, will be sufficient to break the morbid cycle, and, in otherwise healthy individuals, restore gastric comfort.

An ocean voyage, mountain scenery, a stay at the seaside, may effect a cure in the absence of all medication or other forms of treatment.

OBSTETRIC INSTRUCTION.

BY EDWARD P. DAVIS, A.M., M.D.,
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IT would be strange indeed if the advances made in the instruction of medical students in other branches should not apply also to the study of obstetrics. The saving of human life and suffering which the knowledge of proper methods of diagnosis, familiarity with antisepsis, and education in obstetric operations have brought about in the hands of the few and skilled, must be reflected in the teaching given to students. Where a monarchical government is not at hand to dignify science by official recognition, and to control its wards, the problem of dealing with indigent patients in hospitals and in their homes is much more complex than in the government hospitals of the Continent. It is evident that in American cities, while a certain proportion of obstetric cases are confined in hospitals, a considerable number remain at home, and the teacher of obstetrics must be prepared, not only to exemplify in his wards an advanced stage of scientific work, but to make practical application of the same amid the less favorable surroundings of the looging or tenement.

In considering the practical application of this question, we must emphasize first the fact that labor is a physiologic and spontaneous process *only* in physiologic individuals. The rarity with which one meets with perfectly healthy individuals proves that a large proportion of labors are neither physiologic nor spontaneous, but require intelligent treatment.

It may next be said that a medical student is not legally competent to attend such a case. No person without a license from the municipality in which he or she lives should be allowed to attend a con-

finement, and the infringement of this regulation, which is a law in some communities, should subject the offender to prosecution. Under these conditions the indiscriminate assignment of confinement cases to medical students during their tutelage is an offence against medical science and municipal law. The student, however, should visit cases of confinement in the homes of patients and in hospitals under intelligent supervision. He may with propriety and benefit under such instruction act as nurse, although it is a question whether he will not learn more from observing the work of a competent district nurse who visits the patient, than from attempting to care for her after his own fashion.

These premises, it seems to me, call for the following organization in the corps of a medical staff for obstetric teaching: first, the head of the department, a man able and willing to perform, in the best modern methods, any obstetric operation at any time and place. This man should be physically capable of the exertion which pelvic and abdominal surgery requires in difficult operations. He should be possessed of the requisite instruments and apparatus to operate at any time in the hospital or in private houses. He should have the energy and devotion to his work which will lead him to undertake operative treatment when necessary, and the honesty of purpose which will lead him to promptly accept a responsibility that rightfully belongs to him. His field of operation should include Cesarean section, symphysiotomy, the high application of the forceps, version; if the case be complicated, embryotomy, the treatment of inversion of the uterus, eclampsia, and dangerous hemorrhage. He should personally decide in cases of puerperal sepsis whether or no operative interference is indicated of any nature whatever. He should instruct medical students by lectures and clinics, and the entire material of the service, both in and out-door, should be absolutely at his disposal.

Next in rank to him may come his assistant and demonstrator. This man should be versed in palpation and auscultation, in the immediate operation for the laceration of the perineum, in methods of treating hemorrhage and eclampsia, and in all obstetric operations by which faulty presentations are corrected. He should be a graduate of several years' experience, and a man of vigor and energy and sufficient devotion to his work to enable him to willingly undertake a considerable amount of arduous physical exertion.

In obstetric hospitals it is often best to add to this service the third graduate physician, namely, the resident physician. He may be appointed by competitive examination immediately after graduation. His province is to attend regularly the wards of a lying-in hospital and patients confined at their homes. He is expected to deliver normal cases, to assist at abnormal cases, and to learn by every opportunity presented. In accordance with his intelligence he will be taught the use of the forceps, obstetric manipulations during labor, the technique of intra-uterine douching and curetting, and the management of the healthy infant. He should report immediately to the demonstrator any abnormality occurring in his practice, and should be immediately under the supervision of the demonstrator.

The undergraduate medical student should be allowed to observe, but not to interfere. He should be present at labors normal and abnormal. When the labor is conducted by the resident physician, the demonstrator points out the salient features of the case, not only in the management by the resident, but in the work of the nurses. When the resident attends cases in the houses of patients he may be accompanied by several students, who shall witness the labor and assist him during its course.

Under the supervision of the resident or demonstrator, the student should be taught antisepsis, and allowed to examine patients when suitable for diagnosis. The student should be taught palpation and auscultation, the signs of pregnancy, the examination of urine, and obstetric antisepsis. He is, however, not qualified to attend or prescribe for an obstetric case in any manner whatever, and should be informed that he is liable to prosecution if he does so. The medical student should attend lectures upon obstetrics, didactic and clinical; should be drilled in palpation and auscultation, and should be thoroughly taught the mechanism of labor by instruction upon the manikin. He should also be instructed in the contour of abnormal pelves, and in pelvimetry.

The instruction of obstetric nurses should first include graduation in a good hospital, perhaps without an obstetric ward. At least three months' service should then be procured in an obstetric hospital, where, in addition to the usual course, the nurse should be instructed in the examination of urine, chemically but not microscopically, and in the administration of ether and chloroform. If she displays suitable intelligence she can be thus taught to become a most efficient aid to a physician in private practice.

Whenever possible, visiting nurses should be employed to attend cases in the houses of patients, and their visits should be so timed that the resident and students may be present at the visit, observing her methods of work.

In the complications of labor, the resident should promptly summon the demonstrator and such students as may be needed for assistance. If an operation be demanded, especially an abdominal

section, visiting nurses should be added to the number to secure proper antisepsis. If the patient can be taken promptly to an obstetric hospital in an ambulance, so much the better. If not, visiting nurses will supply sufficient clean linen to secure asepsis. The chief of the department of clinical obstetrics should bring with him a suitable operating table and portable sterilizer, and the instruments, ligatures, and dressings requisite for any operation. The case should then be dealt with in a complete and thorough manner, the medical students acting as assistants, and continuing in their attendance upon the case after the operation. In the event of the death of the patient, the same students should be present at an autopsy, if obtainable, and also be required to take portions of specimens to the pathologic department of the college, and there to personally examine them under the supervision of the pathologic staff. A medical student should be given distinctly to understand that attendance upon lectures is the most rudimentary step in medical education. The resident physician should understand that by virtue of his competitive examination he has secured opportunities for study not obtainable by others.

In selecting demonstrators, professors of obstetrics would do well to secure such as have a working knowledge of the modern languages. In this manner a professor and his demonstrator may together study constantly current literature, and furnish from time to time papers and clinical reports of value.

ORIGINAL LECTURE.

NERVE-SUTURING—NEURORRHAPHY—NERVE-GRAFTING.[1]

By DE FOREST WILLARD, M.D., Ph.D.,
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NERVE-SUTURING.

The operation of nerve-suturing may be performed primarily or secondarily. Primary suture is performed immediately after or within a few days of the division of the nerve. Secondary suture is done at any time thereafter, even years later—the hope of success diminishing with the length of time, the loss of nerve-substance, etc. These operations have now been sufficiently numerous to show that the fear of tetanus is ungrounded, no deaths being reported from this cause. Suture of a divided nerve would certainly result in tetanus if division of a nerve, inflammatory conditions, and the presence of foreign bodies were causes of tetanus. Practical experience shows that with cleanliness of person and of instruments the operation is a safe one.

It is best performed after wounds by squaring the divided ends with a very sharp knife, not with scissors, and suturing in such a manner as to prevent any twisting or infolding of filaments. Catgut, very fine, chromicized or made thoroughly aseptic in boiling alcohol, should be employed. Fine sterilized silk is equally good. A round needle is better than a cutting one. The suture should pass directly through the body of the nerve and include both sheath and fibers. A second suture at right angles to the first is often desirable.

Secondary suturing is performed by freeing the imprisoned nerve from all its surrounding cicatricial connective tissue, stretching it freely, and removing a small section, so as to give good opposing surfaces.

It is not well to remove successive sections from the end of a nerve to secure good nerve-filaments and tissue, as the gap may be made very wide before good tissue is reached. It is better, after getting rid of the dense central connective tissue, to draw moderately good ends together and unite them. A nerve will stretch very considerably if it is thoroughly cleared for some distance from the surrounding tissues.

Fig. 1.

Fig. 2.

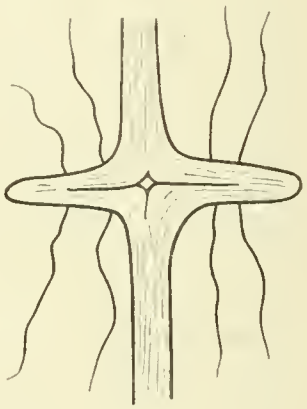
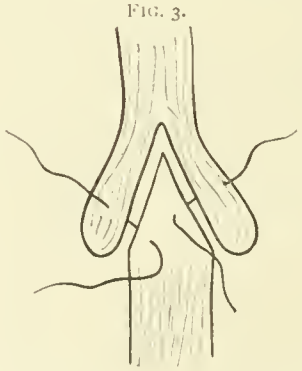


Fig. 3.



The most serious obstacle to successful nerve-suturing is the loss of nerve-substance, occasioned either by a wound or by the extirpation of a neuroma or other tumor. Frequently an inch can be gained by clearing the nerve for a considerable distance, but when this fails the gap must be bridged either by flaps cut from the nerve by longitudinal splitting and turned over from either end or by the device of Bruns (see Figs. 1, 2, and 3), or by grafting.

[1] One of the Mütter Course of Lectures delivered before the College of Physicians of Philadelphia.

Gleiss[1] reports thirteen instances of nerve-suturing in eleven patients in Bruns' clinic at Tübingen from 1882 to 1891. Four were primary operations, seven secondary. Union was secured in all but one case. The median nerve was sutured five times, the ulnar three, the radial four, and the peroneal once. The most rigid asepsis was adopted.

Bruns does not freshen the nerve-ends in primary wounds, but in secondary ones the ends are cut off and the intermediate cicatricial tissue is removed. He gives two new plans for approximation in old cases in which there is union by a connective-tissue bridge. While these are ingenious they do not seem to offer a good end-to-end approximation; not so good as is secured by cutting off the ends and simply suturing them, Figs. 1, 2, 3.

In a case of tearing of a radial nerve complicated with fracture there was no restoration of function at the end of five months. The nerve was thoroughly liberated from compression and from the connective tissue, and was enveloped in a graft of skin, after the method of Thiersch, to prevent restrangulation. Without having given this latter method a practical trial, it strikes me that the squamous epithelial skin-cells would more probably produce compression than would the connective-tissue cells.

The limb should be fixed after the operation, to prevent motion and tension. Massage and electricity should be subsequently used.

Etzold reports six cases ot nerve-injury in the region of the axilla in which restoration of function did not occur, even though the nerves were sutured. He attributes this result to the fact that in high injuries like these it is difficult to restore the nerves. This was, perhaps, not so much due to the height of the injury as to the complications that existed in the axillæ, as the brachial veins had to be ligated; and this, in addition to the injury of the surrounding soft parts, must have interfered with nutrition. Etzold found, as have other observers, that cerebral impulses are conducted along the nerve at an earlier period than those arising from electric impulses. Motion was established in one case fourteen months after suturing, yet there was no electric response.

That sensation seems to require a lower degree of conducting-power in the nerve than does motion is demonstrated in another instance in which return of sensibility was much more rapid than that of motion.

Wolberg[2] has made a number of experiments to decide whether a nerve can heal without degeneration of the peripheral segment. In all of his cases degeneration did take place, and in all of my experiments undoubted degeneration has occurred. In Bruns' four cases of primary suture there was immediate restoration of function.[3]

NERVE-GRAFTING AND NEUROPLASTY.

The suturing of one end of a widely separated nerve-trunk to the freshened surface of a neighboring nerve or muscle is sometimes advantageous. Splitting the nerve and turning down the fragments endangers the vitality of the nerve. Fig. 4.[4] I have practised this method in cases in which the ends could not be brought together by other means, but the results have been only partially satisfactory. Splitting a nerve interferes very seriously with its transmitting-power and subjects it to the risk of inflammation. Microscopic examination, however, in a number of my experiments, shows that even though the injured flap degenerates, it forms a skeleton or basis for regeneration of nerve-filaments.[1] The split halves can, however, sometimes be brought into close end-to-end union; but if torn loose from its attachments the flap becomes a transplanted nerve. If its sources of supply are gone, this procedure possesses but slight advantage over the transplantation of an entirely new piece of nerve from an individual or an animal. The best possible insertion for a fresh graft is a nerve taken from an amputated human limb and immediately introduced into the gap. (Fig. 5.)

Fig. 4.

Fig. 5.

To freshen a neighboring trunk and apply the cut end to its side may be helpful, but this is attended with the risk arising from irritation of the trunk, which may result in pain and other trophic symptoms.

Numerous operations for transplantation of nerves have been described. One of these is by Tillemanns,[2] in which a section four and one-half centimeters long, from a nerve of a rabbit, was inserted in the median and ulnar nerves. Sensation returned in four weeks and motion in nine. Another case is Kaufmann's,[3] in which after an injury to the musculo-spiral nerve a gap of four centimeters was filled with the transplanted sciatic of a dog. The result was doubtful three months later.

Robson[4] inserted two-and-a-quarter inches of a human posterior tibial nerve (secured from a fresh amputation) into a gap in the median, forty-eight hours after an injury. Four months later sensation was almost entirely restored, and although trophic changes were present, the case was very hopeful.

Hoffmann inserted the sciatic of a dog into the radial without benefit; and White, replacing the musculo-spiral by the sciatic of a dog, met with a like result. Albert grafted a section of human nerve into the median and the ulnar in separate cases, but without benefit. Gunn attached the ulnar to the uninjured median, and one month later reported the finger as strong.

Ward inserted two and a half inches of median nerve, just amputated, into a median injured four months before. Seventeen months later there was slight sensation of touch and a fair amount of power, an improvement upon the previous condition.

In another case two inches of a sciatic nerve from a rabbit were placed between the split ends of an ulnar. Sensation returned upon the eighteenth and motion upon the twenty-fifth day. The use of the hand, with marked grasping-power, completely returned.

[1] Beit. zur klin. Chirurgie, Band x, Heft 2, 1893, and Annals of Surgery, August, 1893.

[2] Deutsch Zeitsch. fur Chirurgie, Band xix.

[3] See Gleiss' tables, Annals of Surgery, August, 1893, p. 233.

[4] In Fig. 4, the flaps should have been sutured end to end, instead of overlapping.

[1] International Medical Magazine, April, 1894.

[2] Berliner klinische Wochenschrift, June, 1883.

[3] Revue de Sci. Méd., 1884, vol. xxiv, p. 305.

[4] Clinical Society, London, 1889.

It will be noticed that sensation antedates motion, and in all these cases it was proved that atrophy of the peripheral end certainly was marked.

Atkinson sutured the median nerve and inserted the sciatic of a rabbit between the extremities of the ulnar. Sensation returned before motion.

Harrison[1] reports eight cases of nerve-grafting. In one case he inserted two-and-one-quarter inches of the sciatic nerve of a freshly killed kitten into a median nerve, two inches of which had been destroyed, suturing with catgut. The wound healed by first intention, and sensibility returned in forty-eight hours; nutrition improved. After five months motion returned in the fingers. In another case four inches of the sacral nerve of a dog were inserted into an ulnar, with a return of sensation in thirty-six hours.

Primary grafting is, of course, much more certain than secondary, as trophic changes naturally interfere greatly with the success, although nerve-function is not impossible after a long period of time.

A ferrule of decalcified bone stitched in the gap after invaginating the ends, is recommended by Vaulair,[2] but such isolation of a nerve from surrounding supporting tissues may result in sloughing. In my experience the bone tube disappears so quickly that it is of no use either in guiding the two ends in reaching each other, or in protecting them from subsequent cicatricial contractions.[3]

Another method of splicing consists in splitting longitudinally the nerve through its center for the necessary length, say, one inch, then cutting out one side and reflecting the flap upon its base. The opposing end is then treated in the same way, the flap being made upon the opposite side so as to fit against the corresponding flap. The two can then be sutured.

MacCormac exposed a nerve and attached it by two loops of kangaroo tendon to the inner edge of the triceps, and sutured the fascia with catgut. Decided improvement took place. By the same method Pearce reduced a dislocation forward of an ulnar nerve.

Croft exposed and sutured a nerve to its sheath. Gould also performed a similar operation.

Bergmann adopted another course, viz., resection of the humerus, in order to shorten the arm so that the divided nerve-ends could be brought together, but this seems an unnecessary procedure.

Dittel reports a case in which the ulnar nerve was split for seven centimeters. Flaps were turned up and united end to end, with the result of a restoration of sensation and of movement under prolonged electric treatment.

Vucetic reports an injury to the ulnar nerve attended with loss of substance. Flaps were cut from each end, and catgut sutures employed. Suppuration took place, but the final results were good.

In all cases of nerve-grafting it is vitally important that the animal furnishing the nerve should be young, as the regenerative power is much greater at an early period of life, and in cases of nerve-suture it has been noted that young patients are more hopeful than older ones. The direct method of suturing is usually employed, although the indirect plan has been used in a number of instances.

Pain and stiffness may follow either primary or secondary suturing, but the functions return to a remarkable degree. Sometimes the first evidence of returning sensation is a feeling of tingling or of numbness, followed by a recognition of the fact that certain sensations are being received. This increases until finally restoration more or less complete takes place. There is at first a sense of confusion in regard to sensations, as it is impossible to join filament to filament. A filament of a nerve that primarily brought intelligence from a toe may have been united with a filament presiding over a leg-area; hence, reëducation is necessary, and this is entirely a question of time. It is well known that after an amputation many years are not sufficient for the reëducation of the brain in regard to the area from which new impressions are received.

Although at the time of secondary suturing, degeneration has progressed, yet the speedy restoration of nerver function after injury shows that by some method transmission of nerve-force is brought about; the prognosis, therefore, is very favorable, and no case should be allowed to suffer for want of the attempt to secure union. We may give this class of patients a large degree of hope as to prognosis, as even without operation great improvement has been found to take place, showing that we may have return of sensation in a divided nerve without actual reunion. The functions of motion and sensation both return if continuity of the axis-cylinder has been restored. The symptoms of nerve-regeneration to be expected then will be active muscular contractions, improvement of atrophy and faradic irritability of muscles that have been previously paralyzed.[1]

The question of age materially affects the rapidity of regeneration; this I have proved personally by experimentation, and find that union takes place much more quickly in the pup than in the older dog. Bowlby thinks that the musculo-spiral particularly presents great energy of union, even more than other nerves.

In one case reported at St. Bartholomew's Hospital, in which the ulnar was operated upon by Mr. Marsh, twelve years after the injury, there was decided gain of motion and sensation. No patient, therefore, should despair, but it is well to warn against the expectation of too immediate results. Improvement is sometimes decided only two years after an operation. Of course, the cases operated upon years after an accident are not as hopeful as early ones, yet they are worth the attempt. Whenever improvement fails to take place it is probable that a change has occurred not only in the nerve but also in the central cells. When there has been sloughing and suppuration the amount of dense cicatrix will have much to do not only with preventing union but also with secondary results. If, however, each nerve is freed from surrounding compression this danger is lessened, although a wide line of reunion will certainly interfere with nerve-transmission.

The fact that degeneration occurs in the motor cells of the spinal cord, which are the trophic centers of the muscles, probably explains why in some cases motor

[1] British Med. Journ., 1892, vol. i, p. 602.

[2] Archives de Physiologie, 1882, vol. x, 595.

[3] Internat. Med. Magazine, April, 1894, Experiment No. XII.

[1] A most satisfactory study of nerve-regeneration is contained in Howell and Huber's admirable article in the Journal of Physiology, 1892, vol. xiii, No. 5.

power cannot be restored. Sensation may return when operations are done years after the nerve has been severed, but motion may not so often be restored. Within a year good results may be looked for; the difference of a few weeks or a few months is not believed to affect materially the chances of success. After this time there is a smaller ratio of cures.

I had recently an opportunity of observing a lad upon whom I operated nearly ten years ago for a glass division of the ulnar, which was united and sutured almost immediately after the accident. While able to use the little finger, and while the ring-finger has slight sensation, there is atrophy of all the muscles of the small digit, and that portion of the hand, while useful, is feeble.

In many cases in which no improvement has at first occurred, gradual gain for some months has taken place at a later period.

As regards the errors in reporting various nerve-results after operation the observations of Zander[1] are interesting. His reports tend to show that surface-manifestations are unreliable even as regards such distinct tracts as the divisions of the median into the ulnar and radial. The facts of the case probably are that divisions are uncertain, and that irregularity of distribution and free anastomoses are frequent. Arloing and Tripier have shown that in order to secure absolute loss of sensibility in the foot of a dog, it is necessary to divide every nerve leading to the part.

It is possible that some of the immediate excellent results may have been due to the fact that a region (for instance, the hand) is supplied with nerves from a number of sources, and other vicarious or substitutive nerves may have been brought into play, thus deceiving the surgeon, who may unwittingly report a return of sensation early. A number of these cases are cited by Weir Mitchell,[2] showing that sources of error are common, and Létiévant has forcibly called attention to the same subject.

In many cases of rapid return of function, especially in primary suture, it should be remembered that the supplementary activity of other nerves may give rise to a series of remarkable results, not because a nerve has been sutured, but because the patient has recovered from the shock of the injury, which previous to the operation may have temporarily annulled both sensation and motion. This vicarious action of nerves has been well demonstrated by Mitchell, Savory and others, and errors in observation have been carefully depicted. Errors may occur, as in the case of Pirogoff, quoted by Weir Mitchell, in which case it is possible that the surgeon labored under the same mistake that happened to myself in one of the experiments already alluded to.[3] In this case I was probably as certain as Pirogoff that the nerve had been completely divided, as it was distinctly before my eyes, and yet subsequent examination proved that a large bundle of fibers had escaped section. Naudorfer and Schuh had a similar experience. In Pirogoff's case sensation was normal, but he had *not* sutured the nerve.

Howell and Huber's[4] tables on secondary suturing show that, as a rule, secondary suturing is more hopeful soon after an injury, although results have been excellent even after a long period of time; the average time for the return of motor power is about six months, and for the return of sensation three months—a peculiar fact that shows itself in all nerve-experiments.

Their summary includes 80 cases of nerve-suturing secondarily, with 38 per cent. of successes and 50 per cent. of improvements, making 88 per cent., with only 12 per cent. of failures.

They have presented the profession with most valuable deductions from the recorded cases of suture, and conclude that in primary nerve-suture the nerve-function will in all probability be restored either completely or partially, that young patients are more hopeful than older ones, and that clinical as well as physiologic evidence is against the possibility of immediate union.

In primary suturing the prognosis is exceedingly good, and improvement may be expected in nearly all cases.

Rapid return of motion, and more particularly of sensation, has been frequently noted, but the errors of interpretation have been already noted, and it seems to be definitely proved that the transmission of a nerve-impulse requires a continuous axis-cylinder. Nerve force is a vital force, and though resembling electricity is entirely distinct.

The natural inference from cases of the kind related is obviously that in all cases in which nerves are accidentally divided union should be aided by suturing; and in the majority of cases their function will be restored if the attempt is made within a reasonable period of time.

The prognosis of recovery of function after primary and secondary suture of nerves is very much better now than formerly. Even in secondary suture great improvement is almost certain to follow, and complete success is to be expected in the majority of instances.

Primary suture. Of 117 cases of primary suture collected for me by Dr. John H. Rhein the following summary is made:

The median nerve was sutured 41 times; the ulnar, 38; the median and ulnar, 30; the median, ulnar, and radial, 3; the radial, 4; the musculo-spiral, 3; the sciatic, 1; the external popliteal, 1; the posterior tibial, 1; the anterior tibial, 1.

It will thus be seen that the nerves of the upper extremity have been subjected to this operation in 113 cases, and also that the nerves of the forearm suffer injury more frequently than those of the upper arm. This may be accounted for by the fact that many of the wounds were due to glass, and caused by the effort of the individual to save himself by extending his hand. Knife-cuts are also much more frequent in this region.

The *nature of the injury* was as follows:

From sharp instruments in 62 among 81 cases; from dull instruments in 8; from nerve-injury during operation, 14.

Sex. As might be expected, males are in excess of females, as accidents are much more frequent in men than in women. In the cases recorded, 86 males were injured and 20 females.

Age. Under ten years (the youngest being two years) there were 8 cases; from ten to twenty, 34; from twenty

[1] Berliner klinische Wochenschrift, 1891, Feb. 24.

[2] Injuries of the Nerves. Mitchell, Morehouse, and Keen.

[3] International Medical Magazine, April, 1894.

[4] Journal of Physiology, 1893, vol. xiv, No. 1.

to thirty, 31; from thirty to forty, 15; from forty to fifty, 18; from fifty to sixty, 3.

The exact time after injury is recorded in only a few instances, but it is fair to assume that the majority of operations were performed on the first or second day, and that these were all primary sutures.

Material used. Catgut was employed in 72 cases; silver wire in 5; silk in 7; kangaroo-tendon in 1.

Distance of separation of ends. This unfortunately is recorded in only a few instances. The smallest distance given is 1 cm., and occurred six times; 2 cm., three times; 3 cm., once; 4 cm., once; 2 inches, once.

Return of sensation. The record covers only 39 cases. Sensibility returned on the same day as the causative accident in 7; on the next day in 2; within a few days in 17; after one week in 13; after two weeks in 6; after four weeks in 7; after six weeks in 2; after two months in 3; after six months in 4; after one year in 1; after one and one-half years in 1.

Return of motion. This occurred on the day of the injury in 1; on the next day in 1; after several days in 4; after one week in 6; after two weeks in 2; after three weeks in 5; after four weeks in 3; after two months in 5; after three months in 1; after six months in 1; after one year in 4. One "cure" was reported in seventeen days.

Results. Among 123 cases, one death is reported a few weeks afterward (the cause was not stated), and another took place from gangrene sixty-five days after operation. Improvement in one day is reported in 6 cases; complete return of motion and sensation, one year later, in 10 cases; slight improvement at the end of this time in 10 cases; partial improvement at the end of one year in 3 cases. Slight improvement is also noted in several cases at the end of two and three months, and in other cases complete return of motion and sensation is recorded at the end of one week, eighteen days, two months, three months, six months, ten months, and one year respectively.

Negative results are given in 2 cases.

Sensation is reported normal at the end of two years in 3 cases; in 1 case at the end of four months. Four cases are reported as well in two years, 5 at the end of five years, and 5 at the end of three years. In 14 cases motion and sensation are noted as good.

Secondary suture. A review of the extensive and valuable tables made for me by the indefatigable efforts of Dr. John H. Rhein shows that of 130 cases of secondary suture the median nerve was involved 35 times; the ulnar, 34; the median and ulnar, 20; the musculospiral, 10; the brachial plexus, 1; the fifth cervical, 1; the radial, 29; the sciatic, 6; the popliteal, 1; the external popliteal, 2; the posterior tibial, 1; the perineal, 1; the posterior inter-osseous, 1.

As might be expected, there is a preponderance of males, as they are much more subject to accident. There are noted of males 98, of females 31.

The character of the accidents is as follows: from sharp instruments, 96; from dull ones, 5; from gunshot-wounds, 6; as a result of nerve-injury during operation, 3.

The character of the suturing material used was catgut in 47 cases; kangaroo-tendon in 14; silk in 10; horsehair in 6; silver wire in 2; decalcified bone in 1.

The time of operation after injury was fifteen days in 12; one month in 15; two months in 19; three months in 14; six months in 19; nine months in 20; two years in 10; six years in 1; nine years in 1.

The return of sensation is definitely recorded only in a few cases. This was noted on the next day after operation in 12; several days afterward in 17; within the first two weeks in 21; after one month in 19; after three months in 2; within six months in 12; after one year in 1; after two years in 1.

Motion returned on the next day in 1 case; after several days in 3; within the next two weeks in 9; within a month in 18; after six weeks in 1; within six months in 13; after one year in 3; after two years in 1; after three years in 2. In 1 case it was reported that motion had not returned at the end of a year.

The amount of separation was one-half cm. in 18 cases; one cm. in 9; two cm. in 4; three cm. in 7; four cm. in 9; seven cm. in 1; ten cm. in 2; one inch in 1; two inches in 8.

The results are given as follows: One death from hydatids. Improvement within the first month was noted in 6 cases; "motion and sensation improved in six months in 11 cases." Complete return of motion and sensation took place in from one week to six months in 17 cases. A similar result is reported as having occurred in one month in 7; in six months in 14; in one year in 25; in two years in 18; in four years in 2. Fourteen cases are reported as cured; 3 as completely cured in five years. Other cases are reported as showing a slight improvement in one, two, and three years respectively. These should be put down as unsuccessful cases. The total number of cases slightly improved is 10; either greatly improved in motion and sensation or absolutely cured, 102; very slightly improved, or not improved at the end of a year, 15; 1 death resulted from hydatids; thus giving 80 per cent. improved by operation, with practically no risk to life.

CONCLUSIONS.

1. Immediate suturing of a divided nerve should never be neglected, as the result is eminently successful as regards restoration both of sensation and of motion.

2. Clean end-to-end suture should be secured if possible. In wounds inflicted by a sharp instrument this is easily attained; in torn wounds it is wiser not to remove more of the nerve than is imperative, as a nerve continuously stretched unites less readily than one which lies loosely. Whenever a portion is necessarily sacrificed better union will be secured by clearing the nerve for a considerable distance, stretching it thoroughly so as to obtain end-to-end suture if possible, and then stitching. When it is impossible to join the ends other material may be grafted into the gap, or the nerve may be spliced by flaps cut from its own substance.

3. The best suturing-material is fine chromicized catgut inserted by means of a small, round needle directly through the sheath and body of the nerve. Two sutures are usually advisable, crossing each other at right angles.

4. Secondary suturing offers good hope of success, and should be attempted even if years have elapsed since the accident. Repeated operations may ultimately succeed if the nerve is thoroughly cleared, stretched, and brought together.

5. When the loss of nerve-substance has been large,

a nerve-graft, or a section taken preferably from a freshly amputated limb or from an animal, should be inserted in the gap. This usually gives better results than the splicing-operation of splitting the nerve and turning the flaps into the gap.

6. Decalcified bone-tube, which has been employed for guiding the ends toward each other, is so rapidly absorbed that it is of but little service.

7. Restoration of function often takes place many months after the operation.

8. My own experiments agree with those of other operators and prove that the distal portion of a severed nerve rapidly degenerates, as does also an interposed graft; yet that transmission of function is possible and that subsequent regeneration may take place as regards both sensation and motion.

9. During the healing-process the part should be placed absolutely at rest, and the nerve slightly relaxed if possible.

CLINICAL MEMORANDUM.

AN UNUSUAL CASE OF SYPHILIS.

By J. ABBOTT CANTRELL, M.D.,
PROFESSOR OF DISEASES OF THE SKIN IN THE PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE; DERMATOLOGIST TO THE PHILADELPHIA AND ST. AGNES' HOSPITALS.

The following record of a case of syphilis is more than usually interesting, as the symptoms and course of the disease presented very decided irregular conditions during a period covering eighteen months, during a portion of which time the patient was under my care. I wish to emphasize the extreme malignancy of the disease, the persistent cutaneous manifestations, the therapeutic difficulties encountered, and the thorough carelessness of the man in following directions as to treatment.

W. W., a male, forty-three years old, has been under observation for a period covering twelve years. During that time he has been in the habit of taking periodic "sprees," and while each of these would last only one, two, or three days, he nevertheless kept more or less under the influence of liquor for several months consecutively; and although a married man and one of the best of husbands in the interim, he would often, during these sprees, have a lapse of sexual virtue, which in a number of instances resulted in attacks of gonorrhea. This condition generally responded to proper treatment and was cured in a few days. Unfortunately for him, the last of these sprees occurred about the 15th of November, 1892, while he was away from home, at which time there appeared the initial lesions of syphilis. He permitted himself to go untreated for about five weeks, at the end of which time he presented himself at my office. On December 24, 1892, the man stated that he had always been in the best of health, with the exception of the preceding troubles. He was five feet seven inches in height, and weighed one-hundred-and-seventy-five pounds.

Upon examination I found an initial lesion just behind the corona glandis and on the superior surface of the penis. I advised the use of the official mercurial ointment, and upon his return one week later the lesion was found to be entirely healed. As he was weak and not at work, I ordered one-sixteenth grain of mercuric chlorid, to be taken every six hours, for its tonic effect only; but it was found, after he had taken five doses, that he became salivated, and the drug was discontinued. After this (January 3, 1893) the patient was lost sight of until April 9th, when he again called, stating that he had had no treatment since last seeing me.

At this visit I found that the man had been suffering from lesions upon the skin for the previous three weeks. Upon removing his clothing I noticed that these lesions were scattered here and there over the body-surface. Upon the face the lesions were situated directly above and between both eyes—"corona veneris;" another was found occupying a position directly above the left eye; another covered the right ala of the nose; there was one immediately below the angle of the jaw on the left side, and one was situated in the median line of the neck below the chin. Each shoulder was the site of a lesion; the left arm upon the outer side contributed four similar lesions, and there were three upon the internal surface. There were also three surrounding the right wrist; nine lesions were encountered upon the chest and abdomen, while only five were seen upon the posterior portion of the trunk. I also found twenty-five lesions upon the left leg, the right contributing ten more. Upon close examination I found that all were examples of the large, flat, pustular syphiloderm, and that each lesion (all lesions were circinate) ranged in diameter from one-fourth of an inch to two inches, and all were covered with a rupia-like crust, in some instances raised about one-half inch. There was apparently no discharge from any of them, but upon removing one of the crusts I found a decided exudation of pus. I advised mercury protiodid in doses of one-fourth grain to be taken three times a day, and after the man had taken three or four pills I was again confronted with the constitutional effects of the drug. I changed the remedy and gave potassium iodid in small doses, with the understanding that the dose was to be increased.

On June 1st the man complained of severe pain in the head, which, in fact, was only a sign of a cerebral neuralgia; but the pains resembled very much those found in connection with a gumma of the brain. These pains, peculiarly, were more noticeable at night, and only in the daytime when he was alone. Thinking to assist the potassium iodid, of which he was taking fifteen grains three times a day, I advised inunctions of half-strength mercurial ointment. Salivation again occurred after three or four applications, and, of course, these were discontinued, and after a week, all signs of the former characteristic effect of the drug having disappeared, I again gave him the bichlorid, but in doses of $\frac{1}{200}$ of a grain three times a day; but the same effect was produced after a few doses.

On June 10th, at my request, the man was admitted into the wards of St. Agnes' Hospital, under my care. The pains in the head seemed to be very much worse, and in fact so much so that I was sure that a gumma was present. At this time he was given hypodermics of morphin before sleep was induced, and the potassium salt was increased to twenty grains three times a day. These means were continued for two weeks, when he was again removed to his home. On June 24th the pains had entirely left the head, but

at this time he complained of general neuralgia (more properly a myalgia), the pains extending over the entire body, there being no one portion that was exempt. From this time he began to lose power in every muscle, and consequently was confined to bed, and simply remained in the position in which he was placed by the attendant. At times, while lying in one position, the pains would become severe in a portion of his body, and then he would be changed in bed, with relief for possibly a half-hour, when another change would be demanded. During all this time his appetite remained of the best.

On July 6th entire disappearance of the myalgia was noted, but the man was still confined to his bed and unable as yet to move any portion of his body—the head, the trunk, or the extremities. I noticed at this time that he was losing flesh (present weight 125 pounds) so rapidly that I thought that death would surely occur. His voice began to fail. He was taking thirty grains of potassium iodid three times a day. On July 10th he had lost his voice entirely, and on July 14th he had several chills, for which I advised large doses of quinin.

On July 16th the chills were entirely relieved, and I gave cod-liver oil, ʒij, three times a day. On July 23d the man used the right hand slightly and the voice had returned. He had no pain whatsoever. I noticed that the crusts which, up to that time, had remainded as described, had fallen off, leaving a spot having the color of raw ham. On July 27th he was able, with the assistance of the nurse, to sit up in bed for an hour. On August 3d the potassium iodid was increased to forty grains three times a day. The man was able to stand on his right foot, but had no power in the left leg whatever. On August 10th he was able to walk about five steps, with slight assistance, but there was still no power in the left leg. On August 20th, by supporting himself, and without other assistance, he could walk five or six feet, and on September 1st, with assistance, he could walk about twenty feet. On September 25th, without other assistance than crutches, he was able to walk twenty-five feet. The iodid was now increased to fifty grains three times a day. On October 20th, with one crutch and one cane, the man could walk about thirty yards; although he still had very slight power in the left leg, he could stand upon the right foot without other support. The lesions showed a very dark pigmentation. On November 1st he walked one hundred yards with the assistance of his crutch and cane. By December 1st he walked one-half mile, having his crutch with him, and on January 1st he walked three miles, still having his crutch with him, because he was afraid to go without it, as he was somewhat unsteady as yet on his feet.

The man was again lost sight of until about the 9th of March, when I saw him on his doorstep, and he stated that he had been wearing some electric apparatus. He was unable to walk, or even to stand on his feet. Since that date I have not seen him.

An Anti-Corset League has been formed in England, and it is to be represented at the coming Health Exhibition at Liverpool. We very much fear it will be another of the many failures to try to make women sensible in matters of dress. A young schoolgirl thinks she must have a corset before she is in long dresses. Great is Fashion and it will prevail!

THERAPEUTIC NOTES.

PAPAIN AS A REMEDY FOR TENIÆ.

By ROBERTS BARTHOLOW, M.D.,
OF PHILADELPHIA.

THE apparently successful use of papain in a case of *tænia solium* is the occasion of this letter. The remedies most successful in the expulsion of this parasite are so disagreeable and so difficult to take, for the most part, that it is desirable to have some agent free from these objectionable features. I have happened lately to know of a case in which an immense *tænia solium* was expelled during a course—it at least may be said—of papain, when various effective remedies had been taken in vain. The unfortunate host had been passing segments for several weeks when the first efforts were made by his physician to procure the expulsion of the worm. There were tried successively the "Gardner Extract of Pine Needles," a terebinthinate preparation having some reputation as a teniafuge; naphthalin; pumpkin seeds; decoction of pomegranate root, and Tanret's pelletierin; croton oil, etc.; but they all failed to expel the parasite or indeed any considerable number of segments. The harsh remedies irritated the mucous membrane, and the repeated failures discouraged the patient. Under these circumstances, by my advice, he began the use of papain, taking ten grains three times a day after meals. This ferment, although of vegetable origin, has properties similar to those possessed by pepsin and pancreatin, and it has, also, been employed successfully as a remedy for tapeworm, especially in children. The theory of its action entertained was that, having a solvent action on albumin, it must destroy the worm, which is an albuminous substance. The result in this case is clearly adverse to this theory, for in a few days after it was begun segments passed in considerable numbers—so many as twenty-three in one day—when the patient, finding the parasites much affected, without further delay, on his own account, took a dose of the pine-needle extract and followed it with two ounces of castor oil. Apparently this experiment was, also, a failure, for the day passed without any result, and in the evening the contents of the stomach were evacuated. At 8 P.M. some abdominal pain was suddenly felt, and in a few minutes an immense *tænia solium* was passed complete. This formidable parasite was found by actual measure to be twenty-five feet in length. It seems in a high degree probable that the papain exerted a toxic action on the worm, causing it to relax its hold on the mucous membrane, for, as is usual under such circumstances, it was discharged in a mass, coiled up and motionless, but when hot water was poured over it the motion of uncoiling began, showing that it was stupefied.

I need hardly observe to the readers of THE NEWS that papain is a principle—a ferment—contained in the juice of the *Carica papaya*, and is employed as a substitute for pepsin and as a solvent of the membrane of croup or diphtheria. As it is not a poison or an irritant, it can be used freely in the conditions for which it has been prescribed.

1527 LOCUST STREET.

Dr. Charles A. Power, formerly of New York, has removed to Denver, Col.

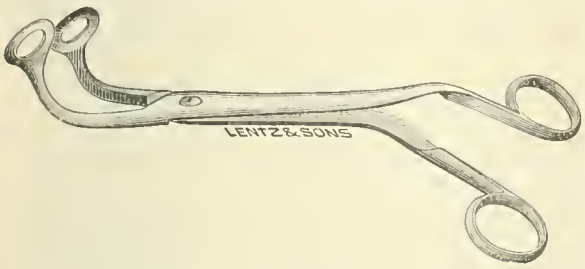
NEW DEVICE.

A NEW POST-NASAL FORCEPS.

By ARTHUR W. WATSON, M.D.,
PROFESSOR OF DISEASES OF THE THROAT AND NOSE IN THE PHILADELPHIA POLYCLINIC.

As there are so many forms of post-nasal forceps already before the profession, I have felt some hesitation in adding another to the list. But I have used the instrument here described for the last two years in a large number of cases, and it has proved so satisfactory that I think it may be found of advantage by others.

In nearly all the forceps for the removal of post-nasal adenoids with which I am acquainted, either the blades are too small, or their cutting-edge is too short, and when working anteriorly the cutting is done with the side instead of the end of the blades. To overcome these defects I have had made the instrument shown in the accompanying illustration. It is of the kind known as



gouge-forceps; and is of the usual length, about eight inches, with a post-nasal bend of an inch and a half. The blades, which are the important feature of the instrument, are oval in shape, with the long diameter transverse to the shaft, making the upper or cutting-edge long—five-eighths of an inch. This edge is set at an angle to correspond, when in position, with the slope of the vault of the pharynx. The anterior projection enables the operator to reach the anterior part of the naso-pharynx without having to depress the handles sufficiently to alter the relation of the cutting-edge to the pharyngeal vault. As the blades are fenestrated, they present no obstacle to the forceps taking a large bite and cutting deeply into the tissue. The instrument is made by Charles Lentz & Sons, of Philadelphia.

MEDICAL PROGRESS.

Abscess of the Right Cerebellar Hemisphere, with Paralysis and Fits Limited to the Same Side.—DRUMMOND (*Lancet*, No. 3700, p. 190) has reported the case of a girl, nine years old, who for three years had had a purulent discharge from the right ear, with the development, a few days before coming under observation, of headache, vomiting, paralysis of the right arm, and right-sided convulsions. The child lay in bed on the left side. The right arm was helplessly paralyzed, the right angle of the mouth was weak, and the leg on the same side showed evidence of paralysis, although a certain degree of voluntary power remained. Convulsions recurred at intervals of an hour, and sometimes more frequently. The spasm began in the face, and almost immediately extended to the arm and occasionally to the leg, but remained limited to the right side. In the intervals the child seemed to regain consciousness, and then it was observed that she was unable to utter a syllable, although to a certain extent she understood spoken language. There was early optic neuritis. No obvious discharge was to be detected from either ear, though cotton introduced in the right meatus was soon moistened with offensive purulent material. A perforation of the left tympanic membrane was discoverd, with some fetid discharge. It was decided to explore the temporo-sphenoidal lobe on the left side, but an abscess was not found. The left arm-center was then exposed, and also the left lobe of the cerebellum, but without disclosing a purulent focus. For a few days succeeding the operation the patient seemed to be somewhat better, the fits becoming less numerous and consciousness returning, but the arm remained paralyzed, and the speech-defect was unaltered. Death took place a week later, and on post-mortem examination a large abscess-cavity, containing about an ounce of pus, was found in the left lobe of the cerebellum, located near the surface and about three-quarters of an inch from the medulla. Careful exploration failed to disclose a lesion of the left side of the brain.

The Staining and Mounting of Tube casts and other Organic Urinary Deposits.—BRAMWELL (*British Medical Journal*, No. 1749, p. 8) makes the following useful suggestions for the study of urinary sediments. An ordinary conical urine-glass is filled with equal parts of urine and an aqueous solution of boric acid, and set aside until the deposit settles. This is then removed by means of a pipet and transferred to an ordinary test-tube containing about half a dram of a solution of picrocarmin, and the two are thoroughly mixed and set aside for twenty-four hours. Some of the sediment is then removed, by means of a fine-mouthed pipet, and mounted. If there is reason to suspect the existence of amyloid disease of the kidney a solution of methyl-violet may be used instead of that of picrocarmin. In order to bring out the fine details of the tube-casts stained in the manner described, and in order to preserve them as permanent preparations, they may be mounted in Farrant's solution, consisting of gum arabic and distilled water, each four parts, and glycerin, two parts, with a little camphor. A small test-tube is filled three-quarters with this solution, and in it is placed, by means of a fine-mouthed pipet, the stained deposit from the test-tube containing the mixture of urine and solution of picrocarmin. The smaller tube is then securely corked, inverted two or three times in order to facilitate thorough mixture, and put aside until the sediment has had time to settle. In the course of three or four days a minute drop of the deposit is removed from the bottom of the tube by means of a fine-mouthed pipet and placed upon a slide and covered. The preparation may in the course of a few days be sealed in the ordinary manner. If the preparation thus mounted is overstained with the solution of picrocarmin the deposit should be transferred to fresh Farrant's solution. Any organic urinary deposits may, of course, be stained, mounted, and preserved in the same manner.

The Thyreoid Gland and its Relation to Myxedema.—LANZ (*Zur Schilddrüsenfrage; Sammlung klinischer Vorträge*, 1894, No. 98) in an elaborate treatise upon the thyreoid

gland and its relations to myxedema, reports the results obtained from a series of experiments made by him upon cold-blooded animals from which he removed the thyreoids. He assumes that the symptoms in cold-blooded animals are much less acute because of the slowness of their metabolism. Fishes, amphibians, and reptiles were employed in the course of his experiments. The removal of the thyreoid from fifty sharks gave an almost completely negative result, all recovering quickly from the operation; the lives of the sharks thus treated, however, were notably shortened. Bony fishes do not survive the operation of thyreoidectomy, but reptiles bear the operation well. In none of his operations did he find a subsequent enlargement of the spleen. He was unable to determine the existence of any relationship between the pituitary body and the thyreoid gland. As regards the influence of food upon thyreoid cachexia Lanz claims that poorly-nourished animals withstand the cachexia better than those that are well fed. Animals without thyreoids do not stand narcosis so well as normal animals, and do not respond to efforts at artificial respiration. Among the symptoms following removal of the gland are pronounced diminution of the blood-pressure, leukocytosis, and great increase in the number of blood-plaques, marked disturbance of respiration, and various digestive disorders—dysphagia, anorexia, vomiting. The experiments of Lanz upon himself do not confirm the experiences of the English experimenters. He has not observed any quickening of the heart's action after the ingestion of fresh thyreoid glands. He suggests the treatment of akromegaly with pituitary gland.

Electric Illumination in Abdominal Surgery.—KELLY (*American Journal of Obstetrics*, September, 1894, p. 348) has adopted the electric light as a perfect means of artificial illumination in abdominal surgery, viewing it as an indispensable part of his armamentarium. In hospital-work he uses a portable drop-light consisting of a sixteen-candle power lamp attached to a short, wooden handle, and connected with the source of supply by insulated wire cords. The light was at first used to secure independence of sunlight, but it was soon found that in many cases it is superior to even the brightest sunlight. By means of such a light, held in the hand and reflected according to will in any direction, every accessible part of the pelvis appears with vivid distinctness, and the smallest oozing vessels can be picked up and torn surfaces accurately united by delicate sutures under direct inspection. Half of the lamp may be surrounded by a reflector, painted black and covered with flannel on its convex surface, in order to protect the eyes and face of the operator from light and heat. The light is to be held steadily and properly directed, about six inches above the patient's body and a short distance below the operator's face. When a street-current or house-current cannot be tapped, a good light may be secured by means of a portable storage-battery. Under some conditions a head-light may be employed, the light being condensed by a reflector behind and a lens in front, the lamp being attached to a flexible steel band which fits the head.

Trephining of the Skull for Spastic Paralysis.—SMITH (*Lancet*, No. 3700, p. 193) has reported the case of a boy, five and one-half years old, whose arms were contracted upon his chest, the legs crossed and partly flexed at the thighs, and unable to stand. Although quite intelligent, he was able to articulate but a few monosyllables. The symptoms had been present from birth, and no material improvement had been hoped for. A transverse depression was found in the occipital bone, two and one-fourth inches wide and about an inch from above downward, just below the occipital protuberance. The uncertainty of the results of operation having been explained to the parents, and they having agreed to assume all risks, two openings were made in the depressed bone by means of a trephine an inch in diameter and united into one. The meninges projected forcibly upward through the opening, but there was no pulsation of the brain when first exposed, but before the completion of the operation pulsation was quite natural. The wound healed by first intention. There was at once a marked improvement in the child's general condition, and the limbs became gradually more relaxed and the legs less drawn up, and the little patient became able to extend the right hand to be shaken, as he had not been able to do before. The improvement was continuous, and the child slept more quietly than before the operation.

THERAPEUTIC NOTES.

A Case of Medicamentous Lipuria.—SCHLOSSMANN (*Archiv f. Kinderheilk.*, B. xvii, H. iii, iv.; *Wiener med. Presse*, 1894, p. 1347) has reported the case of a child, a year-and-a-half old, presenting dyspeptic symptoms, but otherwise healthy, to whom was administered a prescription containing a half-ounce each of castor-oil and olive-oil, with one drop of peppermint-oil, a teaspoonful at night and half a teaspoonful in the morning. The child began to improve, but it was observed that it was passing a smaller amount of urine than normal. The first passed was quite opaque, of whitish-gray appearance, somewhat resembling dirty milk, and contained many fine particles in suspension. On permitting the urine to settle in a conical glass it was found that the turbidity was due in part to the presence of alkaline urates and in part to the presence of fat. The filtered urine did not respond to tests for albumin, and the sediment contained no cellular elements. The little patient soon recovered from her gastro-intestinal derangement, and the urine and micturition became normal in the course of two days. From a diagnostic point of view it is pointed out that a condition of pathologic lipuria is not to be assumed until the ingestion of a readily absorbable fatty substance is excluded.

Two Cases of Nitro-benzol Intoxication have been reported by GRIECHOW (*Virchow*, 1893, p. 13; *Schmidt's Jahrbücher*, 1894, No. 8, p. 139) following the ingestion of one or two drops, and five or six drops respectively, of oil of mirbane in brandy. The symptoms presented were weakness, vertigo, dyspnea, with increased frequency of respiration, cyanotic discoloration of the skin, dilatation of the pupils, and a characteristic odor of the breath and vomited matters. In the course of three days both patients were practically well, though for a considerable length of time there was complaint of headache and nausea. Forty-two additional cases of poisoning with nitro-benzol have been reported. The drug is a nervous poison, acting on the central nervous system.

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SATURDAY, OCTOBER 6, 1894.

RECENT RESEARCH CONCERNING THE STRUCTURE AND FUNCTIONS OF THE ADRENAL GLANDS.

WHETHER it has been the successful issue of the experimental researches in connection with the thyroid gland which has acted as an incentive, or merely economy demanding that from an excess of workmen in fields already well tilled, some should be delegated to certain neglected and more or less out-of-the-way corners of the domain of inquiry, or whatever may have been the cause, certain it is that during the last two years a remarkable amount of attention and thought has been directed toward those small and as yet comparatively little understood structures in the body—the so-called ductless glands. And when we ransack the literature and estimate the progress made and the results obtained by the workers in these byways, we must admit that while many of the researches have been incomplete and fragmentary, yet, when the fragments are pieced together, outlines of conceptions of function and structure quite new and unsuspected begin to appear, very indistinct as yet, it is true, and broken by many gaps and spaces which have still to be filled up, but nevertheless outlines—surprising, promising and stimulating.

As an example of what may be found out almost for the looking, we wish to call attention at this time to some new points in connection with the supra-renal capsules, which have some bearing not only upon the anatomy, but also, it would seem, upon the physiology of these bodies. Without entering at all into a review of the normal histology of the adrenals, it is of importance, in connection with what is to follow, to refer to one or two of the microscopic features of these organs which have been before noted by a few observers. Of these we shall mention three, viz: (1) occasionally single adrenal cells are present in the suprarenal vein; (2) red blood-corpuscles have been seen included within the protoplasm of adrenal cells; and (3) groups of red blood-corpuscles apparently not within bloodvessels have been observed among the gland-cells, giving the impression of small hemorrhages into the parenchyma of the gland.

MANASSE,[1] working recently, in Von Recklinghausen's laboratory, on the hyperplastic tumors of the adrenals, noticed certain peculiar buds and processes of adrenal cells projecting into the veins, and immediately set about studying normal adrenals to find out whether or not similar structures existed in them. That they did exist in the healthy glands he was able to establish beyond doubt. Besides adrenal cells, occurring singly and in small heaps, mixed with the blood in the veins, he could demonstrate, especially in the medulla, processes of adrenal cells varying in size from small buttons to long strings of cells pressing through the walls of the veins. These were sometimes found floating without any covering within the lumina of the vessels, and sometimes spread out, with bases of considerable width, on the inner surfaces of the venous walls. The free floating processes too could be made out in transverse section, when they had the appearance of small discs of adrenal cells situated within the veins and surrounded on all sides by red blood-corpuscles.

This relation of the adrenal cells to the veins was so striking that MANASSE determined to carry his investigations further. He therefore collected at slaughter-houses the adrenals of horses, oxen, calves, pigs and sheep, removing them with the least possible disturbance from the body and laying them unopened into hardening reagents—alcohol, Müller's fluid, and a 2 per cent. solution of potassium bichromate. The medulla of the supra-renal bodies, with its granular, polygonal cells arranged in cords

[1] Virchow's Archiv, Bd. 135, Heft 2, p. 263.

and irregular networks imbedded in a connective tissue framework, has been especially studied by EBERTH, by v. BRUNN, and by ARNOLD. One of the most interesting characters of the medullary cells described is the deep-brown tint which they assume on treatment with solutions of the salts of chromic acid. MANASSE in his comparative studies found that the substance giving this reaction varied much in amount in different cells—the difference being referable, he thinks, to different stages of physiologic activity rather than to the presence of distinct varieties of cells.

But MANASSE found—and this is to us as interesting as any of his observations—in the veins of the medulla, and occasionally also in the arteries, masses of a substance which, although observable at first glance, were so striking that he thought he must be dealing with an artefact or with a pathologic condition. He saw in these vessels brown, glassy, homogeneous masses intimately mixed with the red corpuscles, and completely filling the lumina so as to form veritable casts. Along with these masses in the veins he could also often make out spherules apparently of the same material as the former, although of a darker-brown color This hyaline substance could be seen in the veins of the adrenals of all the animals examined, when the tissues were fixed in chromate-solutions immediately after death; adrenal glands, however, which had been hardened in alcohol showed no trace of its presence. This fact led MANASSE to think of a connection between the brown hyaline in the vessels and the brownish pigment of the medullary cells, as VON BRUNN had before pointed out that in tissues hardened in alcohol the pigment in these cells was extracted.

His experiments on the supra-renal bodies of animals not only completely confirmed his earlier observations on human adrenals, as far as the projection of columns and masses of adrenal cells directly into the veins was concerned, but also yielded additional results. In some of the smaller veins he could make out a distinct relation between the brown hyaline masses and the contents of the brown cells, of which the intravenous processes of adrenal substance consisted. The membraneless cells of the processes were seen to communicate directly with the homogeneous masses; a portion of the latter still remained within the cells, while part was already within the lumina of the veins, so that cell-contents and venous contents formed a continuous whole. In other places small slit-like vessels could be seen, lined on one side by endothelium and on the other by a row of brown cells, the latter apparently pouring out their contents into the lumina. Following these smallest vessels still further, he came finally to structures which gave an appearance as though the brown masses represented a direct secretion from the brown cells. At these points the canals had a striking resemblance to gland-tubes, being lined completely by brown cells; the lumina were filled with the refractive brown masses mixed with red-blood corpuscles, and occasionally blood-capillaries could be demonstrated communicating directly with the tubes.

The brown hyaline is quite different from what we have been accustomed to understand by hyaline, especially in its chemic reactions. It is easily soluble in alcohol, and is not affected by sulphuric, nitric, or acetic acid, by solutions of magnesium sulphate, ammonium or magnesium phosphate, or by silver nitrate.

To satisfy himself that this brown hyaline was not an artefact due directly to the chemic action of the chromates, MANASSE attempted to find the substance in living animals, and succeeded in making out in the blood of the supra-renal vein obtained from an etherized dog large numbers of small hyaline, glistening, colorless spherules, each about half the size of a red blood-corpuscle. These spherules occurred usually in clumps, bore no relation to the red or white corpuscles of the blood, and were entirely unaffected on treatment with osmic acid. In view of the fact that GOTTSCHAU had described similar findings in the blood from the supra-renal veins of the rabbit, MANASSE apparently regards the hyaline substance seen in the blood as the same as that seen in the veins in his sections.

His paper is carefully written and is extremely conservative in its claims. In closing his article he lays stress on the fact that the question as to whether or not the brown hyaline in the ves els represents a condition existing *intra vitam* must still remain an open one. Neither does he consider it proved that the brown masses represent a secretion of the medullary cells which is carried through the veins into the circulating blood. He remains, for the present, satisfied in his demonstration of the near relation of the adrenals to the veins and to the venous circulation.

We had also intended to refer somewhat at length to the interesting researches of OLIVER, referred to

by Prof. Shäfer in his admirable address to the Physiological Section of the British Medical Association at its recent meeting, but for want of space must dismiss them in a few words. Oliver, working with an extract of suprarenal capsules, found that in certain cases in human beings it was capable of producing an increase of vascular tone and a diminution in the size of the arteries. In other words, its effects were quite contrary to those of thyroid extract. Turning to animal experiments, he also proved that both alcoholic and aqueous extracts of the adrenals contained a most potent physiologic substance, which, on injection in extremely minute doses, produced a remarkable effect upon certain parts of the nervous, muscular, and vascular systems. When the vagi were intact after the injection, the heart beat slowly and weakly; when they were divided, these inhibitory influences disappeared, and the heart was very differently affected, the beat gaining enormously in force and frequency; at the same time the peripheral arterioles became much contracted, and there thus resulted an enormous increase in the arterial pressure. Whether this extraordinarily powerful substance is to be looked upon as a useful product manufactured by the adrenals from the blood, and "subsequently gradually used up in the economy for the virtue of its action upon the circulatory system, or whether it is to be regarded as a poison formed by the tissues during their activity, and carried by the blood to the suprarenals, there to be rendered innocuous, we do not as yet certainly know."

When these facts are added to those already known in connection with Addison's disease, with the interesting spectroscopic examinations of the pigment in the suprarenals made by McMunn, and with the ablation-experiments of Brown Séquard, Tizzoni, Abelous and Langlois, and others, the significance and the importance of the adrenal glands, small as they are, cannot fail to be better appreciated. It is to be expected that further investigations will in the near future be rewarded with results fully as interesting as those to which we have just referred.

EDITORIAL COMMENTS.

The Foot-ball Craze is again manifesting itself. The daily papers contain interesting accounts of the friendly practice games of the various teams. Of one college crew we read the following report:

They practise with a desperate fierceness, and quite a hospital list is swelling out. Trainer —— has ordered a number of men to stop practice until they recover their full vigor. As a result two elevens could not be gotten out to-day, so general work in catching, punting, stealing, tackling, blocking, following, and interfering was done.

——'s knee is growing worse instead of better, and he is laid off just as he was beginning to round out nicely and show signs of becoming a valuable man.

Trainer —— is seriously worried about him, and is afraid he will not come about until too late in the year to be of any use. Captain —— received another serious wrench in his knee, and has been compelled to cease practice, although he daily appears in a suit. ——'s foot remains no better, and another abscess is forming. —— has badly bruised his thigh, while a number of the other men have sustained minor injuries.

These, be it observed, are only the playful results of practice-games, and with the brothers of one's own team. What a charming and inspiring picture! This is the end of intellectual and educational training!

Like another disgusted traveller, we might place at the entrance of this wretched road the warning sign:

This road is impassable;
Not even jackassable!

At a dinner of the alumni some time ago the President of Princeton University said in reference to athletics: *I appreciate scholarship as much as any one, but I realize the fact that all of those who go to college do not desire to become fine scholars.*

Could strabismic ethics be more sly or cunning? Could catering to a vulgar fashion be more abject?

But does squint-morality finally pay? Not always. The present freshman class at Princeton is smaller than that of last year, a result to be charged up to foot-ball and hazing, two amusements that logically go well together. It seems that parents and guardians do not quite agree with some of their wiser (?) but weaker educators. Such a result, our readers will remember, has more than once been prophesied in these columns.

The Need of Negro Physicians.—It is said that the average length of life of the New Orleans negro is only 24.2 years. This frightful mortality is also ascribed to the lack of medical attendance and the wretched sanitary conditions in which the colored population of large Southern cities live. It is asserted that probably not one-half of the negroes receive any medical attention during illness. Here is certainly a field for home missionary work. If the foregoing assertions are to any great extent true, it is a disgrace to our civilization and to our common humanity. Forty million dollars have been given since the war toward the literary education of the colored race, but how much more pressing is the problem of their medical care and sanitation! It may be doubted if forty cents have been given toward the education of negro physicians. Much has been done in educating foreign medical missionaries; why not do the more needed duty of medically educating young colored men, thus avoiding a crying public disgrace by enabling them to work among their suffering brethren?

The Anti shaking-hands Society.—Science is a great destroyer of sentiment. Much has been printed in both lay and medical journals concerning the dangers of kissing. Children may no longer buy a cent's worth of ice-cream

in the street, fine ladies will no longer handle money, except in bills never before put in circulation, gloves must be worn whenever touching a door-knob, nurses must never allow children to be kissed by anybody, and so forth. A humorous correspondent of a London journal, taking advantage of this bacteriomania, has perpetrated a joke not only on his own serious-minded journal, but upon many others who have solemnly reproduced it and added great warnings to their readers. This excellent correspondent tells how in the ancient and semi-barbaric city of Baku, in Russia, there has been formed a society of the leading citizens, each member paying a subscription of six rubles; the object of the society is the prevention of handshaking. Any lapse into handshaking is punished with a fine of three rubles. The correspondent tells how a delegation consulted a scientific specialist, who warned them that the hands of their dearest friend might be covered with horrid germs of all kinds, but especially with those of cholera. The Anti-shaking-hands Society was speedily formed.

Prof. R. Matas, of New Orleans—as we shall henceforth be glad to call him—is not so much to be congratulated upon his appointment to fill the Chair of Surgery in the Medical Department of Tulane University as is the University itself in securing such a man. The departmental vacancy had been caused by the untimely death of Dr. A. B. Miles, and a strange tendency was shown to seek elsewhere for a surgeon to fill it. Indeed, the position, we believe, was offered to Dr. L. McLane Tiffany, of Baltimore. Certainly the University has honored itself in choosing Dr. Matas, whose remarkable abilities have long been most widely recognized.

Dr. Matas has now one imperative duty to perform—to work with his characteristic energy and high-mindedness to stop the disgrace of graduating students into the profession after only two years of medical study.

We congratulate The Journal of the American Medical Association upon the enlargement of its mechanical and editorial facilities, and wish it increased and ever-increasing success. The *Journal* is in one sense beyond competition. It has a unique place to fill and unique opportunities to advance the science, art, and ethics of medicine. When it shall have been brought to a realizing sense of what it owes to the profession it will become a power for good second to none in the world. Meanwhile THE AMERICAN MEDICAL ASSOCIATION should receive the earnest and thorough and hearty support of every physician in America.

SOCIETY PROCEEDINGS.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Abstract of the Proceedings of the Seventh Annual Meeting, Held in Toronto, Ontario, September 19, 20, and 21, 1894.

FIRST DAY—SEPTEMBER 19TH.

THE Association met in the Council chamber of the College of Physicians and Surgeons at 10.15 A.M., and was called to order by the Second Vice-President, DR. GEO. F. HULBERT, of St. Louis, Mo.

An Address of Welcome on behalf of the local medical profession was delivered by DR. JAMES THORBURN, which was responded to by Dr. Hulbert.

The reading of papers was proceeded with, the first being by DR. J. HENRY CARSTENS, of Detroit, entitled "The Incision in Abdominal Surgery—Methods and Results." The author summarized his results as follows:

1. With a small, narrow-bladed, sharp knife, make a clean incision of the necessary length through the skin, and with another sweep or two cut through the linea alba, muscle, etc. Lift the peritoneum with the fingers, open it, and enlarge the incision. The use of the forceps or the grooved director to lift the tissues is unnecessary.

2. In closing the abdominal incision use animal ligature, kangaroo tendon, and catgut. First, carefully bring together the peritoneum in a running stitch, then the transversalis fascia, and the rectus, if the incision is through this muscle. Then carefully bring together, edge-to-edge, the tendinous insertion of the oblique muscles. The fat and loose cellular tissue above can be brought together in one or two tiers, according to thickness. Bring the skin together carefully with Marcy's cobbler-stitch, thus burying all sutures.

3. Then seal with collodion, and if everything connected with the operation has been carefully aseptic, absolute primary union will take place, and the different layers of the abdominal wall will have been brought together as near as possible as they were in the first place, and no hernia will result.

4. In cases of extensive umbilical, ventral, or other hernia, it is best to bring the peritoneum together with an over-and-over stitch of kangaroo tendon or catgut; to make a flap-splitting operation of the ring, bring together with silkworm-gut or silver wire, buried, and then the fat and skin are united with the buried animal suture.

DR. JOSEPH PRICE, of Philadelphia, read a paper on "Plastic Surgery in Gynecology," in which he said that the practice of surgery in all its branches required a mechanical turn of mind and an ability to devise means to accomplish a given end. In order to mend a perineum intelligently the mechanism of labor must be understood and the lines of fracture appreciated. In cases of serious pelvic invasion with accompanying lacerated cervix, it is often better or imperative, first to do the pelvic operation, and to follow this at another time with the cervical repair. The author condemns the plan advised by some, to perform internal and external operations at one sitting. Perineal tears always occur at certain parts of the perineal structure. These tears are either lateral, under the ramus of the pubes, or central, extending from the vagina toward the rectum. The tears toward the rectum tend to run round it rather than through it, owing to the differentiation of structure in these two tubes. The tears of the vagina are always from within outward, and from above downward, and therefore the external, or skin operations, for perineal lacerations are essentially unscientific procedures. All operations for the restoring of the integrity of these parts should be done in the lines of their destruction, and therefore from within outward and from above downward. When the skin of the perineum is involved, mending is merely a cosmetic procedure. The cosmetic element too often predominates in many of the so-called perineal devices. The silkworm-gut with shot is by far the most preferable

material to be used for sutures. As little tissue as possible is to be included within the ligature, and strangulation is to be avoided.

Dr. W. B. Dewees, of Salina, Kansas, next read a paper entitled "The Care of Pregnant Women." The paramount duties of the obstetrician in the study and care of pregnant women may be classified as follows: 1. To discover if the patient be actually pregnant. 2. To determine positively if the impregnation be uterine, or normal, as contradistinguished from tubal, abdominal, or abnormal. 3. To carefully note the pregnant woman's history, including her age, primiparity or multiparity, environments, station in life, general condition of health, period of gestation, as well as her dress, food, drink, and habits of life. To make repeated examinations of the urine, and ascertain the temperature from the time pregnancy is established to the termination of gestation. 4. To make a physical examination for the purpose of accurately determining the diameter of the pelvic straits; the symmetry and size of the bony outlet; the integrity, condition, and position of the vagina, uterus, and other intra-pelvic viscera and adjacent structures; the state of the abdominal muscles; the presence or absence of hernia, varicose veins, tumors, etc.; the shape, size, and condition of the breasts and nipples; the condition of the heart, lungs, mind, stomach, bowels, etc. 5. To observe the state of the fetus, its strength and viability, as well as the implantation of the placenta. The thoughtful obstetrician will advise his patient as to the requisite *régime*. The consciousness of his full duty will impel him to insist upon: 1. Absolutely regular hours and wholesome environments. 2. Plain but nutritious and wholesome food and drink, being principally composed of fresh lean meats, fresh fruits, pure milk, and distilled water. 3. A proper amount of exercise, by walking or light labor on foot, and maintaining the correct erect posture. 4. An open condition of the bowels and skin, which is to be chiefly maintained by proper diet, exercise, and bathing, the wearing of flannels, warm low-heeled shoes, and loose garments, and in rare cases the proper use of laxatives and hot-water enemas.

Dr. George S. Peck, of Youngstown, Ohio, read a paper on "Appendicitis, with Report of Cases."

Case 1. Operation on July 6th, during intervals of attacks; obstruction; a second operation was performed, recovery following. The operation was on July 27, 1894. The appendix was buried in a mass of strong adhesions between the ileum and cecum, and contained large fecal concretions. The appendix was removed in segments. The ileum was returned to the abdominal cavity. During the first six days the highest temperature was 100°; the pulse was 100. On the fifth day there were four attacks of vomiting, the fourth containing fecal matter. On August 4th the incision was reopened and there was found about three feet from the ileo-cecal valve a complete obstruction by a band of dense adhesions. The obstruction was liberated, the ileum brought out in the incision and the abdominal cavity packed with gauze. During the entire day of August 1st the pulse ranged from 140 to 160; vomiting of fecal matter continued at frequent intervals, and tympanites was increasing. At 7 P.M. symptoms of obstruction continued, becoming worse every hour. As a temporary expedient a small opening was made in the ileum, and fecal matter and flatus came away in large quantities; the vomiting then ceased and tympanites disappeared. From the thirteenth day to the present time the patient has had from one to three daily passages per rectum; she sat up for the first time on the thirty-third day. She was discharged from the hospital on the fifty-fifth day after the first operation.

Case 2. The operation was during the fourth day of the first attack. The large appendix was removed, containing two drams of pus and fecal concretions. The adhesions were broken up and the incision packed with iodoform gauze. Uninterrupted recovery followed. The woman was discharged from the hospital the twenty-eighth day after operation.

Case 3. Operation was on the third day of the third attack. The peritoneal cavity was opened and the adhesions broken up; the large appendix was removed; uninterrupted recovery ensued.

Case 4. Operation was during the tenth day. Death from septic peritonitis in sixty-five hours followed. A large abscess cavity was evacuated; the appendix, gangrenous and detached, was washed out by irrigation. Autopsy revealed general septic peritonitis.

Case 5 was one of perforating appendicitis. Operation was during the third day of the attack. Death followed from septic peritonitis twenty-seven hours or more after operation.

Case 6, similar to the previous one, died from general septic peritonitis.

Dr. W. G. McDonald, of Albany, contributed a paper on "Appendicitis: Observations Based on a Clinical Study of Eighty-four Cases." Out of the great amount of literature, controversial and otherwise, three important landmarks are established: (1) That for all practical purposes all inflammatory processes in the right iliac fossa arise from the appendix. (2) That practically the appendix is always intra-peritoneal, and that any operation undertaken for appendicitis that does not involve the entering of the peritoneum is false in its surgical conception. (3) That idiopathic peritonitis does not occur. That many cases diagnosticated as such are really cases of perforating appendicitis. The author classified the varieties as (1) Acute perforating, fulminating appendicitis with general peritonitis. (2) Acute suppurating appendicitis with local plastic peritonitis and abscess. (3) Subacute appendicitis, variously termed catarrhal, chronic, relapsing, or obliterating appendicitis, or appendicular colic. The perforation occurs very much earlier than is commonly believed. Acute suppurative appendicitis with local peritonitis presents the most favorable field for operation during the attack. The removal of the appendix is to be undertaken with great circumspection when it lies in the walls of an abscess-cavity. The third group of cases does not require operation during the first attack, but if repeated attacks occur, operation during quiescence is demanded. Operative results in these cases are most favorable.

Dr. Joseph Hoffman, of Philadelphia, followed with a paper on "Surgical Appendicitis."

Second Day—September 20th.

Dr. W. B. Dorsett, of St. Louis, read a paper entitled "Ligation of the Uterine Arteries for the Cure of Fibroid Tumors and Checking Hemorrhage." The

object of this paper was to establish the author's priority as well as the originality of ligation of the uterine arteries for the cure of fibroids. He made observations during December, 1889, and January and February, 1890, and reported a case of atrophy of the genitalia and described the technique of the operation of ligation of the uterine arteries for the cure of fibromatous growths in a paper read before the St. Louis Medical Society, May 17, 1890, and which was published in the *St. Louis Courier of Medicine*.

Dr. Henry Howitt, of Guelph, Ont., read a paper entitled "Remarks on the Surgical Treatment of Intussusception in the Infant, Based on Two Successful Cases." In it he recommends early abdominal section as being the best method of treatment to reduce the high mortality rate of intussusception in early infancy. Of the two cases cited, one child was at the time of operation under three and the other under six months of age. In regard to the steps of the operation, among other things he advises a small median incision, evisceration, reduction by pressure on the apex of intussusceptium, while the intussuscipiens is drawn in the opposite direction, and forcing the contents of the ileum into the colon before returning the intestines to the abdomen.

Dr. Robert T. Morris, of New York, demonstrated a method of intussusception in rabbits.

The next paper was on the "Treatment of Distention of the Fallopian Tubes without Laparotomy and Removal," by Dr. Frank A. Glasgow, of St. Louis. The paper was intended to bring before the profession a method of curing tubal distention by means of intra-uterine treatment in contradistinction to celiotomy and removal. By this means the uterine ends of the tubes are made more patulous, and a discharge takes place from the tube through the uterus. The author called attention to the fact that the tubes, so far as his observation goes, are always pervious at the outer extremity of the cornu, hence, when removing them, we must always clamp them before cutting. The obstruction must be within the uterine wall, probably in the endometrium, and hence gonorrheal inflammation is not an adhesive inflammation, and therefore it does not follow that the tubes have a true atresia following this inflammation. His opinion was that the closure is due to a swelling of the endometrium, and hence a closure at the uterine end takes place. When this inflammation and swelling are overcome by pressure and antisepsis, the tubes become patulous again. The intra-abdominal pressure will cause fluid in any pendant portion of the tube to ascend into the uterus. The foregoing procedure can be carried out in three different ways: First, by gradually packing with gauze without anesthesia. Second, by rapid dilatation of the cervix and packing with gauze after curetting. This is done under anesthesia. Third, his own method of dilating by means of antiseptic or sterilized elm-bark tents. These tents are small strips of elm-bark made just long enough to enter the cervix completely and not press on the fundus. They should be kept in an alcoholic solution or mercuric chlorid, 1 to 4000, and have a short string attached by means of which they may be withdrawn. They are partially broken in a number of places for the purpose of making them more pliable. They may be dipped into glycerin or water just before introduction. These tents may be used when it would be impossible to pack with gauze. He had treated twenty or more cases during the past year, and did not recall one in which he did not get some discharge from the tent. All of the cases were either cured or very much benefited.

Introductory remarks by Dr. William W. Potter, of Buffalo, were made upon "Inflammatory Disease of the Uterus and Appendages and of the Pelvic Peritoneum." Dr. Potter began by recalling the well-known fact that the pathology of pelvic disease had been entirely reconstructed since 1860, and that now we had come to regard inflammation of the pelvic peritoneum as generally symptomatic of disease of the ovaries or Fallopian tubes, or both. Mr. Tait within the last ten or twelve years, together with men who have worked abreast of him (some of whom are members of this Association) have driven out the theory of pelvic cellulitis that for so long held sway, and now perimetritis and parametritis have been dropped from the gynecological vocabulary. The struggle has been a long one, but abdominal surgeons have demonstrated the truth of this proposition, that pus originating outside of the tubes or ovaries in the non-puerperal state is a very rare condition, and that speaking generally, pelvic abscesses are pus tubes. The largest number of women in the consulting-rooms of gynecologists are those suffering from pelvic inflammation or its residues, hence the importance of the subject under discussion cannot be overestimated. But, he asserted, it is only within the past seven or eight years that anything like uniformity of opinion as to the causes and proper treatment of pelvic inflammation have been adopted. Now, just as we are beginning to agree as to the essentials governing these cases, we are told by a number of agreeable gentlemen who call themselves conservatives, that these diseases do not demand operation, but that they can be cured in most instances by tentative measures, such as diet, rest, electricity, and the like. By denouncing the work of abdominal surgeons as unnecessary mutilation, and stigmatizing it as castration or unsexing women, they have created a panic among the medical journals that is reaching far into the ranks of the profession. The effect of this is to turn back the wheels of time and stay the advance of progress, with harmful results to suffering women. It must be admitted that these so-called conservative men are clever, which makes their subtle and dangerous doctrine all the more damaging in its results.

Dr. C. A. L. Reed, of Cincinnati, discussed the "Clinical History of Inflammatory Disease of the Uterus and Appendages and of the Pelvic Peritoneum"; Dr. L. S. McMurtry, of Louisville, the "Causation and Pathology"; Dr. James F. W. Ross, of Toronto, the "Diagnosis and Prognosis"; Drs. M. Rosenwasser, A. Vander Veer, J. Henry Carstens, and Dr. Joseph Price, "The Treatment."

Dr. Joseph Hoffman, of Philadelphia, read a paper entitled "Pus in the Pelvis and Abdomen, its Diagnosis and Treatment." He said that pus in the abdominal and pelvic cavities had been treated and considered with far more leniency than pus anywhere else in the human economy. It was the tramp manifestation of all disease. He considered briefly the various organs in which pus makes its appearance, and in the order of frequency he

mentioned the kidneys, the appendix vermiformis, tubes and ovaries, the liver, the pancreas, and the spleen. Each case should be treated according to the demands it makes and according to its complications. There is no good in doing an ideal operation and have the patient die when it is over. Ideal work was that which gives the best result in the line for which it was done. Surgery of the abdomen was a work of self-denial, of trial, of unexpected complication, and lurking disaster. He best can rise to it who has for his motto "my patient." Self-seeking carelessness of lives has its place in the carnage of internecine strife, not in the shadowy sorrows of dying women.

Dr. E. W. Cushing, of Boston, made some remarks on hysterectomy for cancer of the uterus.

Dr. James F. W. Ross, of Toronto, read a paper entitled "Personal Experience with Pus Tubes, when to Operate, how to Operate, and the Results of Operation."

Dr. H. T. Machell, of Toronto, contributed a paper on "Congenital Diaphragmatic Hernia," in which he reported two interesting cases.

"A New Operation for the Radical Cure of Inguinal and Femoral Hernia," was a paper read by Dr. C. A. L. Reed, of Cincinnati. The operation which the author devised is as follows: The incision in inguinal hernia is made from a point two inches above Poupart's ligament midway between the anterior-superior spinous process of the ilium and the spine of the pubis, obliquely downward and inward as nearly as possible consistent with the access of the inguinal canal to a point at the base of the scrotum. The dissection is then carried into both scrotal and pelvic cavities. The protruding viscus is then reduced and carefully inspected after being brought out above. The sac is then carefully dissected from its scrotal connections and reversed by invagination. It is then opened by two incisions, one toward the pubes, the other toward the ileum, being thus converted into an anterior and a posterior flap. The cord is now dissected loose and placed in the canal, denuded of its peritoneum at its outer angle. The internal ring is closed by several interrupted sutures of animal or buried silk, these sutures being applied beneath the peritoneal flaps formed by splitting the sac, care being taken that in the closure of the ring undue pressure shall not be brought to bear upon the cord. The posterior peritoneal flap is now excised, the stump being ligated, should there be any necessity for doing so. The anterior flap is carried across the now obliterated internal ring and stitched by interrupted sutures to the posterior parietal peritoneum. The external ring is now closed by passing a number of sutures through its pillars externally to the cord, which is now fixed in the internal (pubic) angle of the outlet of the canal. The incision into the abdomen is closed by interrupted figure-of-eight sutures, the internal loop embracing the peritoneum, the aponeurosis of the transversalis and of both oblique muscles, and the external loop embracing the superficial fasciæ, fat, and skin. These sutures should not be more than three-quarters of an inch apart. The incision into the scrotum may be closed in the ordinary way. Drainage should not be employed except in the presence of marked oozing or obvious infection.

Dr. A. Vander Veer, of Albany, presented a report of one hundred and forty-five operations done for removal of ovarian tumors and pathological conditions associated with the ovaries and uterine appendages only. He gave a careful review of the subject of the preparation of patient, embodying all the strong points pertaining to the technique of such work, placing great stress upon the importance of the room in which the operation was to be done being put in a thoroughly aseptic condition, and thorough cleanliness of the patient herself. The operations comprise all the varieties of pathological conditions met with in connection with the ovaries and tubes. The histories of the cases were somewhat interesting. Thirty-nine gave a history of phthisis, fifteen of carcinoma, fifty-seven of irregularity of menstruation. The mortality amounted to 11 per cent. While not criticising adversely the methods of other operators in closing the wound by means of different rows of sutures, kangaroo tendon, and other forms of sutures, yet he has no reason to give up his usual method of closing the wound by deep sutures of silkworm-gut, placing them three or four to the inch, taking in carefully only a margin of the skin, a portion of the fascia and muscles, and not to exceed one-quarter of an inch in width of the peritoneum itself, placing much stress upon the importance of careful, thorough, complete apposition. The causes of death in the seventeen cases were as follows: Obstruction of the bowels due to a coil of small intestines becoming attached to the stump of the pedicle, causing death on the fourth and fifth day, two cases. Septic peritonitis, two cases. Immediate hemorrhage from the pedicle, slipping of the knot within six hours after the operation, though the wound was reopened, the vessels secured, abdomen flushed, and hemorrhage controlled, one case. Undoubted hemorrhage from the pedicle, causing general peritonitis, although no distention of the bowels was present, death on fourteenth day, one case. Shock within twelve hours after operation, one case. Shock within twenty-hours after operation, one case. Autopsy in both cases revealed everything in good condition. Pulmonary infarction on sixth day, one case. Aggravated diabetes, one case. Exhaustion on the sixth day, no other apparent cause found, one case. Another case of exhaustion on the third day, the symptoms in the last two cases, including an autopsy, not revealing any other cause. Multilocular ovarian cyst, tapped twice, operation complicated with four months' pregnancy, one case. Puerperal septicemia, one case. Intestinal obstruction on twenty-first day, one case. Advanced age, complicated with the recent effect of an attack of la grippe, one case. Delayed operation in a case of extra-uterine pregnancy possibly four months, one case.

Dr. A. H. Cordier, of Kansas City, read a paper on "Hydrosalpinx." He said that articles had appeared in medical journals by the so-called conservative writers in the last few months in which aspiration or catheterization of the Fallopian tubes filled with liquid had been advocated as a procedure of relief and cure. Such articles had engendered a retrograde tendency on the part of many, and it is sure to be at the expense of an increased mortality from subsequent operative procedures to cure these cases after abandoning the unsurgical and uncertain tinkering. Hydrosalpinx had been looked upon as the least hazardous of all inflammatory results to the Fallopian tubes. The writer claimed that hydrosalpinx was a sequel of some old inflammatory diseases of the

tubes, an offspring of a virulent process that had wrought permanent and irreparable injury to the delicate structures of the tubes. The writer did not consider hydrosalpinx as a retention-cyst. Cases were rarely diagnosticated prior to operation. A digital examination of one of these cases causes less pain than is produced in examining a case of pyosalpinx. In one case occurring in the essayist's practice the uterine extremity of the tube was largely dilated and filled with a clear fluid, while in the ampulla there existed a collection of pus separated from the clear fluid by a closed stricture.

"Inflammatory Disease of the Uterus and Appendages under Various Modes of Treatment" was the title of a paper by Dr. Joseph Price, of Philadelphia. The methods of treatment of pelvic disease may be broadly classed as those that are proved and those that are experimental. Many of the operations now successful were formerly failures, because of the insufficient knowledge of how to deal with a wounded gut, how to make an anastomosis, or how to do a bowel-resection. Hence, it is to be put down as a postulate in pelvic surgery that no man has a right to attempt it who does not know how to deal with all the complexities of intestinal surgery. To know when to stitch and when not to stitch the intestine is as necessary as to know when and when not to operate. The leaving of pus tubes to recover of themselves is just one step removed from stuffing them with gauze and trusting to Providence. To puncture and evacuate and stitch a suppurating cyst—say a real ovarian cyst—would be derided, and yet, said the essayist, we have operators who do not hesitate to do this with the smaller pus tube.

Dr. George H. Rohé, of Catonsville, Md., said that conservative surgeons were very much shocked at first by the proposition to remove the uterus together with the adnexa in cases of inflammatory disease in the pelvis. The operation has, however, won its way against opposition, and must now be considered as an elective procedure in cases of extensive suppuration with adhesion, and especially in those cases, so numerous, in which the endometrium is likewise the seat of purulent inflammation. Gonorrheal, puerperal, or tubercular inflammations and dense adhesions with displacement of the uterus demand removal of this organ, as well as of the appendages, if permanent good results are expected. Total extirpation of the uterus and appendages by the vaginal method for pelvic suppuration was first done by Péan, in 1886. Péan, Segond, Doyen, Jacobs, and Landau have performed the operation upward of five hundred times, with an average mortality of less than 5 per cent. The operation by the vagina is easier than abdominal extirpation, and, in the hands of most surgeons who have performed it, is attended by less shock. It leaves the parts in condition for perfect drainage. The after-treatment is simple. Patients may sit up in a week or ten days. Forceps are preferred to the ligature for hemostasis.

The next paper was on "The Present Status of the Treatment of Pelvic Inflammation, or How Shall We Deal with Pelvic Inflammatory Troubles? By Dr. W. B. Dorsett, of St. Louis, Mo.

The author drew the following deductions:

1. Pus in quantities is hard to deal with down in the pelvis in laparotomy cases, and, if possible, should be evacuated prior to taking out the tubes and ovaries, either through the cul-de-sac of Douglas, or, if between the layers of the broad ligament at the side of the uterus, laparotomy should be done at some future time.

2. Pus-sacs in the tube near the uterine end of the tube can be evacuated through the uterus by packing the horn.

3. Parametritis or cellulitis of the ancients is, except under rare instances, a secondary trouble due to a foul uterine cavity. Clean out the cavity and stop the source of poison, and you do the best thing possible to be done.

(To be concluded.)

AMERICAN PUBLIC HEALTH ASSOCIATION.

Abstract of the Proceedings of the Twenty-second Annual Meeting, held in Montreal, P.Q., September 25, 26, 27, and 28, 1894.

First Day—Morning Session.

The Association convened in the Hall of the Y. M. C. A., and was called to order at 10 A. M. by the President, Dr. E. P. Lachapelle, of Montreal.

Dr. Robert Craik, of Montreal, reported on behalf of the Local Committee of Arrangements.

Dr. H. F. Nuttall, of Baltimore, contributed a paper entitled "Hygienic Notes Made on a Short Journey Through Italy in 1894," which was read by Dr. A. L. Gihon, of Washington, D. C. The notes referred principally to the sanitary condition of Naples, where poverty and ignorance provided an easy prey to every epidemic until 1884. But after the cholera epidemic of 1884 the government resolved to spend one million francs for sanitation. New sources of water-supply were secured, new sewers built, and whole blocks of tenements were torn down and replaced by modern houses. The result has been to impart habits of cleanliness to the people and to greatly reduce the death rate.

"The Cart Before the Horse," was the title of the next paper, by Dr. Benjamin Lee, of Philadelphia. The object of the paper may be briefly embodied in the two following propositions:

1. Copious water supplies with the aid of what is known as modern plumbing, constitute a means of distributing fecal pollution over immense areas, through the soil, through subterranean water-courses, and in surface streams, and cannot, therefore be regarded with unmixed approbation by the sanitarian.

2. The question of drainage and sewerage, whether for individual residences or for communities should always precede that of water-supply; and no water-closet should ever be allowed to be constructed until provision has been made for the disposition of its effluent in such a manner that it shall not constitute a nuisance prejudicial to the public health.

Dr. Wyatt Johnston, of Montreal, followed with a paper on "Observations upon Sedimentation in Water," in which he said that the amount of settling which takes place in the settling basin of the Montreal Water Works is too small to be seriously considered, the capacity of the basin being only twenty-three million gallons, and the daily consumption about eighteen million, the water really only passes in and out of the basin. Analysis proves that bacteria are far less numerous in the reser-

voir water than in the settling basin. The melting of snow in the spring has a tendency to increase the number of bacteria in the reservoir water. As to the value of sedimentation from a hygienic point of view, it is much below that of a sand filter.

Dr. A. N. Bell, of Brooklyn, described very completely the Long Island Water Basin, or Brooklyn's Reservoir.

Prof. F. T. Shutt, of Ottawa, Canada, read a paper entitled "Water of Our Farm Homesteads." The speaker had examined hundreds of samples of water from wells from Canadian farms, and very frequently had found it polluted. No doubt many cases of disease could be traced to this source. Water containing the drainage of barnyards could not but be a source of danger and the cause of internal disorders. Too much care cannot be taken in selecting the site of the farm-well and in keeping the surroundings free from filth.

"Sand Filtration of Water, with Especial Reference to Recent Results Obtained at Lawrence, Mass," was the next paper, by Mr. Geo. W. Fuller, of Lawrence. The author entered a strong plea in favor of sand filtration of water. During the five years preceding the use of the filter at Lawrence the average annual death-rate from typhoid fever was 1.27 per 1000 inhabitants, the population of Lawrence being 50,000, and this average is equivalent to 63 actual deaths per annum. During the past year there have been 26 deaths from typhoid fever, a reduction of 60 per cent. Of the 26 who died, 12 were operatives in the mills, each of whom was known to have drunk unfiltered and polluted canal water, which is used in the factories at the sinks for washing.

Mr. E. B. Shuttleworth, of Toronto, contributed a paper entitled "Some Deductions from Bacteriological Work on the Water of Lake Ontario," dealing with the bacteriological character of lake water. With regard to the depth of water as affecting the number of bacteria, the author is inclined to think that bacteria are directly influenced by season. He is convinced that certain microörganisms multiply most readily at certain seasons of the year. He threw out the suggestion that this may have an important bearing in explaining the prevalence of typhoid fever at certain times during the year. This seasonal peculiarity was marked in Toronto, where every September shows a sudden increase in the typhoid rate, with a corresponding decrease after October.

First Day—Afternoon Session.

On reassembling the first paper read was by Dr. Charles Smart, of Washington, it being the "Report of the Committee on the Pollution of Water-Supplies," of which Dr. Smart is chairman.

The report reviewed at length the influence which a polluted water-supply may have had in the recent cholera epidemic in Europe, and upon the spread of typhoid fever on both continents. The efforts to purify water by sand-filtration were also reviewed, the committee hesitating to reaffirm its former positive language with regard to the sufficiency of filtration as protection against typhoid fever; nor, on the other hand, does the committee regard the testimony as authorizing a formal declaration of opinion in favor of the efficiency of filtration. It is hoped that the success achieved at Lawrence will lead to the filtration of other surface waters, each of which will probably teach an important lesson in connection with bacteriologic experiments and with the mortality from typhoid fever before and after the construction of the filter-beds.

Dr. Gardner, of London, Ont., moved that, in view of the danger to the public health by the sewage contamination of our fresh water lakes, rivers, and streams, this Association memorialize the different Federal Governments, as well as the State and Provincial Governments, to pass laws prohibiting the contamination of water-supplies by sewage from cities, towns, and villages, and compel them to provide some means for the treatment and oxidization of this sewage before emptying it into these places. Carried.

Dr. Charles A. Hodgetts, of Toronto, read a paper on the "Management of Diphtheria Epidemics in Rural Districts." The medical officer in these cases must exercise a personal supervision, not only over his patients, but personally superintend the carrying out of all orders, for upon the thoroughness of the work depends to a very large extent the prevention of further outbreaks in the district. The inhabitants of the rural districts should receive more attention from the sanitary authorities than they have in the past, and some inexpensive system should be adopted for the more efficient and prompt management of epidemics in those portions of our country. The schools should be closed in the district until such time as the inspector has satisfied himself in the manner indicated that the households of the individual scholars thereof are free from diphtheria.

Dr. P. H. Bryce, of Toronto, followed with a paper on "Practical Difficulties by Medical Health Officers and Physicians in Dealing with Inspected Cases of Diphtheria." One of the difficulties consisted in differentiating between simple sore-throat and diphtheria, but in order to be on the safe side the author recommends and urges isolation of all cases.

Dr. J. Ed. Laberge, of Montreal, read a paper on "Vaccination as a Preventive of Contagious Diseases," in which he dwelt largely upon the investigations of Pasteur and others.

Dr. J. D. Griffith, of Kansas City, contributed a paper entitled "Innocuous Transportation of the Dead." He opened by quoting instances in which epidemics were renewed by the exhumation of bodies after years had elapsed, and concluded that the danger of one having died from an infectious disease must be great. He cited as an instance of the virulence of a dead body that in a Normandy village twenty-three years after an epidemic of diphtheria some of the bodies of those who had died of the disease were exhumed, and an epidemic at once broke out, first among those who had opened the grave, and spread from those to many others. Other examples were cited. Until we educate the public to the point of thorough sanitation of cremation the transportation of dead bodies by the railways is and always will be a source of very great danger. He urged that attention be directed by the Association to the different legislative bodies of the land to a subject of such vital importance. He urged, furthermore, that all railways set off a small portion of their baggage cars for the transportation of dead bodies, placing the body in a box lined with zinc with a door very much after the fashion

of a large ice-chest. This done, the lives of employés would not be endangered. No broken or open box could become infected, and no odor would escape from the car.

FIRST DAY—EVENING SESSION.

At this session addresses of welcome were delivered by Dr. Robert Craik, of Toronto, His Honor the Lieutenant-Governor of Quebec, Mayor Villeneuve, of Montreal, and Hon. L. P. Pelletier, of Montreal. The President's Address followed, in which he reviewed the progress of the Association during the twenty-two years of its existence.

(To be concluded.)

CORRESPONDENCE.

VITAL STATISTICS OF THE NEGRO.

To the Editor of THE MEDICAL NEWS,

SIR: Mr. Frederick L. Hoffman, in an article in THE MEDICAL NEWS (September 22, 1894, page 320) entitled "Vital Statistics of the Negro," refers to a communication made by me on the same subject, April 7, 1894, page 389, in which a plea is made for the consideration of sociologic factors in the study of this question.

The whole subject of statistics is involved, and the negro is merely used as an illustration. Figures in themselves mean nothing; they must be carefully analyzed and studied in connection with social conditions. To say that one city has a larger death-rate than another may be a statistical truth, but it is not a truth from which alone we can draw conclusions. We must know what influences exert themselves in each city; what is the occupation and the nationality of its population; the percentage of children to adults; the geographic position of the city; whether its inhabitants live in tenements or separate dwellings; whether they are in affluence or in poverty; whether ignorant of hygienic laws or cultivated in them; and a host of other matters must be taken into consideration before we can say that one city is *healthier* than another. There are three kinds of lies, some one has said, "white lies, black lies, and statistics."

Mr. Hoffman, from the strength of facts presented, concludes that "the differences are physical and permanent," and yet a few lines before he says that "under better social and sanitary conditions the death-rate (among the negroes) will diminish, but it will still be in excess of the neighboring whites." Certainly, because the neighboring whites in the better districts are usually the wealthy classes who employ these very blacks, who live in the alleys back of their mansions.

And again, he says, "what else but a high rate of mortality and a low degree of morality can be the result of such tendencies," namely, the crowding together in the worst districts of the large cities. But if the "differences are physical and permanent," of what use "the genuine education in laws of hygiene and principles of morality" which Mr. Hoffman recommends? If an all-wise Providence has ordained the black man to be the servant of the white man, and to be unable ever to cope with him in the social struggle, why try to oppose the "hidden wisdom?"

Mr. Hoffman raises the question that "if the high rate of mortality among the colored population be due largely to unfortunate social conditions, why should not also the foreign element be affected in a similar manner?" And he partly answers this question by stating that the Irish population shows a mortality similar to the negro, and in my communication I stated that the Italians gave as large a death-rate in the slums as the negroes.

I will here quote from the compendium of the Eleventh Census, Part II, in which returns are given from registration bureaus covering a population of about 13,400,000 persons. Of this number, 7,200,000 live in cities and the balance in country or rural districts. Arranged according to nativity and color are:

Colored	1,000,000
Native-born whites	6,000,000
Native born of foreign parentage	3,250,000
Foreign born	3,000,000

A sufficiently large number from which to draw conclusions.

	Per 1000.
The death-rate on the total number was	19.64
" " " city population was	23.58
" " " rural population was	14.99
" " among the colored was	19.57
" " " foreign born was	19.85
" " " native whites was	17.00
" " " native born of foreign parentage was	24.32
Colored death-rate in cities was	34.52
" " in rural districts was	19.00
White " in cities was	23.32
" " in rural districts was	16.00

This shows that the foreign-born whites and the children born of foreigners have the same death-rate as the colored, because they often dwell in the same surroundings and are under the same economic conditions.

This summer I had opportunity of studying the mortality of some of the so-called "slum" districts of our city. A tenement-house owned by a philanthropist and conducted on sanitary principles, occupied by 25 colored adults and 25 colored children, gave an annual mortality for the past three years of 10 per 1000 (2 deaths in four years), while in the rear of this tenement a court, in which several colored and white families resided, returned a mortality of 40 per 1000. Two squares away—in Baker Street—(the rag-pickers' district) occupied almost exclusively by Italians, and where the children are less numerous in proportion to the adults than among the Russians and negroes, the mortality rate was 45 per 1000.

Now, to show how little statistics in themselves are worth, we find the Russian Jews living in the same house with Italians and colored returning a much smaller percentage of deaths than either, and yet much larger than is obtained from the farm colonies of New Jersey, where the same class of individuals are settled, because the Jew, no matter how filthy he may appear, has some knowledge of hygienic laws and takes care of his children; the more ignorant he is, the more orthodox in his observances of these Mosaic laws.

Thus, social conditions and hygienic surroundings largely influence the death-rate, and the negro usually lives in the most unsanitary and wretched portions of the large cities.

We ought not to classify the mulatto with the full-

blooded negro any more than with the pure white. They should be considered in a class by themselves, and yet all the deaths occurring among this mixed breed are credited to the negro. The death-rate among mulattoes is, I believe, much in excess of that of the pure negro, and this may be due to the illegitimacy of birth, which plays some rôle here. Leffingwell, in his study on "Illegitimacy," states that among the illegitimate children of Great Britain and other countries the death-rate is twice as great as among the legitimate. This fact may also have some bearing on the death-rate among the colored generally, as illegitimacy is quite common among them. Children without a father are more apt to be neglected, the mother, obliged to make her living, leaving the child to care for itself.

Mr. Hoffman brings forward statistics from the army and insurance actuary, and he could use the figures presented in my communication in relation to deaths in prisons. We do not dispute the fact that the *adult negro* furnishes a greater mortality than the *adult* white under similar conditions; but, as the majority of these deaths are due to tuberculosis, and as this disease can be acquired in infancy and remain latent for a long period, and that nowhere can we find better conditions for the spread of this infectious disease than in the miserable and overcrowded dwellings of the great majority of negroes, a reasonable claim might be made for the statement that because of this *previous environment* the colored adult is not the equal of his white brother, and must react differently to the same stimulus, and not because "of a race proclivity to disease and death."

The moral question must be treated in the same special manner. All law-breakers are not sent to prison, and the more influential the criminal, the less likelihood of conviction. The police-court investigation in New York City shows us that morals cannot be determined by the number of arrests, and that the most disorderly element in New York City was most exempt from police interference.

We should compare this mass of poverty and ignorance with that mass of poverty and ignorance; but we cannot take a class as socially distinct as the negro and stand him up against the whole white race with its four or five social divisions; it is not scientific. As stated before, this is not a race question; it is simply a plea for the sociologic analysis of statistics.

In the same number of the Medical News (p. 316) Dr. Irving M. Snow has a paper on "Rickets among Italian Children," and in it he shows how, under bad surroundings in this country, the children of Neapolitan parents are more likely to be afflicted with rachitis than in their native clime, "because in their own land the misery, ignorance, and neglect of hygiene amid which the children are reared are in some degree offset by the bright, warm sunshine," and in which they constantly live. He further states: "This cannot be accomplished with the children of the city poor, and it is to *this lack of pure air* and *sunlight* that we may attribute the spread of rickets in densely populated urban communities." . . . All the causes of rickets—improper food, bad air, depression caused by infantile maladies—are intensified, and the presence of rachitis in seven-tenths of the Neapolitan babies in Buffalo indicates a constitutional deterioration from a great and sudden change in environment."

The very same causes are active in the negro, and rickets is likewise a common disease among the colored children.

Thus, before we can call characteristics racial and dependent upon distinct organic differences, we must eliminate the sociologic factor, and to understand this requires a thorough knowledge of the environment and how it influences the element of society in question; and most important, from a physical as well as moral point of view, is the environment of infancy and childhood. Improper nourishment, neglect, exposure to disease, all leave lasting effects on impressionable material, causing deep physical changes, as might be illustrated by many well-known examples.

Respectfully yours, M. V. Ball.

Philadelphia, Pa.

NEWS ITEMS.

The New York State Medical Association.—The eleventh meeting of the New York State Medical Association will be held Tuesday, Wednesday, and Thursday, October 9, 10, and 11, 1894, at the Mott Memorial Hall, 64 Madison avenue, near Twenty-seventh street, New York City. The following papers have been announced: (1) A Case of Lateral Lithotomy for the Removal of a Wire-nail, Alleged to Have Been in the Bladder for Years; Recovery; (2) Report of a Case of Traumatic Epilepsy; Recovery, Zera J. Lusk, M.D., Wyoming Co.; (3) A Case of Anesthesia with Death, and Attempted Extortion Successfully Resisted; (4) A New Non-conducting Speculum for Post-partum and Post-abortum Intra-uterine Douching, Eden V. Delphey, M.D., New York Co.; (5) Interesting Cases from General Practice, Illustrating Special Points of Treatment, Charles E. Lockwood, M.D., New York Co.; (6) Brief Comments on the Materia Medica, Pharmacy, and Therapeutics of the year ending October 1, 1894, E. H. Squibb, M.D., Kings Co.; (7) Some Interesting Cases of Appendicitis, Joseph D. Bryant, M.D., New York Co.; (8) Typhlenteritis Versus Appendicitis, J. W. S. Gouley, M.D., New York Co.; (9) The Differential Diagnosis of Intra-cranial Lesions, Charles Phelps, M.D., New York Co.; (10) Recent Studies on Diphtheria and Pseudo-diphtheria, William H. Park, M.D., New York Co.; (11) Diphtheria, John Cronyn, M.D., Erie Co.; (12) The International Sanitary Conference of Paris in 1894, Stephen Smith, M.D., New York Co.; (13) Can Herpes Cause Dangerous Edema or Spasm of the Glottis? John S. Jamison, M.D., Steuben Co.; (14) The Technique of Cesarean Section, with Exhibition of Cases, A. Palmer Dudley, M.D., New York Co.; (15) Hysterectomy for Uterine Fibroma by Baer's Method, with Report of Nine Successful Cases, Joseph Taber Johnson, M.D., Washington, D.C.; (16) Hysterectomy in Pus Cases, William R. Pryor, M.D., New York Co.; (17) The Anatomy and Surgical Treatment of Inguinal Hernia in the Male, Illustrated by the Stereopticon, Henry O. Marcy, M. D., Boston, Mass.; (18) Fractures at the Elbow-joint, E. M. Moore, M.D., Monroe Co.; (19) Fractures of the Inferior Extremity of the Humerus, Involving the Articulating Surface; with Report of two Cases Occurring in Chil-

dren, Douglas Ayres, M.D., Montgomery Co.; (20) The Stearate of Zinc Compounds in Atrophic Rhinitis, Joseph S. Gibb, M.D., Philadelphia, Pa.; (21) Suppurative Cellulitis Following an Injury to the Hand, William H. Robb, M.D., Montgomery Co.; (22) Diet and Regimen for the Diminution of Fat, T. J. McGillicudy, M.D., New York Co.; (23) Discussion on the Prevention of Tuberculosis, Hermann M. Biggs, M.D., New York Co.; (1. The Importance of Tuberculosis from a Sanitary Standpoint, as shown by its Prevalence. 2. The Factors in the Causation of Tuberculosis. 3. The Communicability of Tuberculosis and the Manner of its Transmission. 4. The Early Recognition of Pulmonary Tuberculosis through Bacteriological Examination and its Influence on Prevention. 5. The Influence and Value of Special Hospitals for the Treatment of Tuberculosis in the Prevention of the Disease. 6. The Influence of the Doctrine of Communicability upon the Diminished Prevalence of Tuberculosis. 7. The Importance of Measures to be taken at Health Resorts for Tubercular Patients for the Prevention of this Disease. 8. The Dangers of Infection in the Various Means of Transportation, *i. e.*, Steamboats, Surface and Elevated Cars, Day-coaches and Sleeping-cars. 9. The Proper Attitude of State, Municipal, and Sanitary Authorities Toward Tuberculosis, and the Specific Measures to be Taken for the Prevention of this Disease.) These propositions will be discusses by: (24) Lawrence Flick, M.D., Philadelphia, Pa.; (25) W. T. Councilman, M.D., Baltimore, Md.; (26) Edward G. Janeway, M.D., New York Co.; (27) E. K. Dunham, M.D., New York Co.; (28) William H. Park, M.D., New York Co.; (29) Henry D. Didama, M.D., Onondaga Co.; (30) The Diagnosis and Treatment of Pleurisy, J. Blake White, M.D., New York Co.; (31) The Treatment of Retinitis Albuminuria from an Ethical Standpoint, Frank Van Vleet, M.D., New York Co.; (32) Address: The Germs of Some Discoveries, John Shrady, M.D., New York Co.; (33) R: A Few Therapeutic Hints, Henry D. Didama, M.D., Onondaga Co.; (34) The Removal by Trephining of Fluid the Result of Acute Cerebral Meningitis, with Report of a Case, and Experiments Upon the Lower Animals, B. M. Ricketts, M.D., Cincinnati, Ohio; (35) Reminiscences of a Country Doctor During the Past Fifty Years, Including the Crude Condition of American Medical Literature at the Beginning of that Period, Darwin Colvin, M. D., Wayne Co.; (36) A Practical Study of Grave Abdominal Contusions, with a Clinical Report of Twenty Other Cases, Thomas H. Manley, M.D., New York Co.; (37) Some Facts About the Treatment of Typhoid Fever, John G. Truax, M.D., New York Co.; (38) Intestinal Anastomosis, Frederick H. Wiggin, M.D., New York Co.; (39) The Arthropathies of Locomotor Ataxia, Parker Syms, M.D., New York Co.; (40) A Case of Ectopic Pregnancy at the Utero-tubal Junction, E. D. Ferguson, M.D., of Rensselaer Co.; (41) Primary Laparotomy in Tubal Pregnancy, J. E. Janvrin, M.D., New York Co.; (42) Direct Arterial Transfusion, John G. Orton, M.D., Broome Co.; (43) Restoration of Function of the Lung and Pleura after Thoracentesis, Charles A. Leale, M.D., New York Co.; (44) Uretero intestinal Fistula as a Result of Abdominal Abscess Not Due to Appendicitis, A. J. Van Vraken, M.D., Albany Co.: (45) Remarks on Strangulated Inguinal Hernia, Robert Selden, M.D., Greene Co.; (46) What is Fever and How is it Best Managed? Henry F. W. Risch, M.D., Kings Co.; (47) Tetanus; its Etiology, Pathology, and Treatment, J. Lewis Smith, M.D., New York Co.; (48) Cases of Death of Fetus at an Early Stage of Gestation, and Retained in Uterus to full Period, H. O. Jewett, M. D., Cortland Co.; (45) Title to be announced, C. G. Stockton, M.D., Erie Co.

The Medical Society of Virginia will hold its twenty-fifth annual session at Richmond, October 23, 1894. In addition to the annual address of the President, Dr. William P. McGuire, of Winchester, the subject of "Appendicitis" will be discussed by Dr. William L. Robinson, of Danville. Dr. J. W. Long, of Richmond, will follow with a paper on "The Indications for Celiotomy in Appendicitis." Dr. Edwin A. Down, of Hartford, Conn., will read a paper on "The Psychic Factor in Appendicitis." Drs. A. M. Phelps and Robert T. Morris, of New York City, and Dr. Joseph Taber Johnson, of Washington, D. C., will discuss the subject.

The following additional papers are announced: "Currettage of the Uterus," by Dr. John W. Dillard, of Lynchburg; "Care of the Insane," by Dr. James D. Moncure, of Williamsburg; "Trephining for Epilesy," by Dr. J. T. Boutelle, of Hampton; "Dysentery," by Dr. William F. Cooper, of Woodville; "Preventive Medicine," by Dr. William A. Thom, Jr., of Norfolk; "Some Old Remidies in the Treatment of Diphtheria," by Dr. George W. LeCato, of Wachapreague; "The General Practitioner's Knowledge and Responsibility in Gynecological Troubles," by Dr. Joseph Price, of Philadelphia; "Preventive Treatment of Pulmonary Phthisis (Tuberculosis)," by Dr. J. Edgar Chancellor, of Charlottesville, Va.; "Sepsis: its Early Diagnosis by the Pulse," by Dr. J. Allison Hodges, of Richmond, Va.; "Sporadic Cretinism and its Treatment by Thyroid Extract," by Dr. Wharton Sinkler, of Philadelphia; "Cesarean Section—Report of a Case," by Dr. Alfred B. Tucker, of New York; "Glycerin Suppository as a Substitute for the Glycerin Tampon," by Dr. J. T. Graham, of Wytheville, Va.; "Psychical Epilepsy," by Dr. Samuel J. Fort, of Ellicott City, Md.; "Report of a Case of Dislocation of the Hip-joint, with Fracture of the Femur," by Dr. George W. Larrick, of Middletown, Va.

Dr. Oertel, Assistant Superintendent of the Hygienic Institute of Hamburg, died on October 2d. His death is said to have been caused by infected water ingested for the sake of experiment and which was followed by an attack of cholera.

BOOKS AND PAMPHLETS RECEIVED.

Thirty-third Annual Report of the Cincinnati Hospital, to the Mayor of Cincinnati, for the Fiscal Year ending December 31, 1893. Cincinnati: The Commercial Gazette Job Print., 1894.

A Case of Primary Tuberculosis of the Laminæ and Spinous Processes of the Vertebral Column. By John B. Roberts, M.D. Reprinted from the Annals of Surgery, 1894.

Tenorrhaphy by Means of the *Suture à Distance* of Catgut with Report of a Case. By Emanuel J. Senn, M.D. Reprinted from the Journal of the American Medical Association, 1894.

Twelfth Annual Report of the Children's Aid Society of Pennsylvania, 1893. Philadelphia: Office of the Society.

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ORIGINAL ARTICLES.

TREPHINING IN THREE CASES OF EPILEPSY: TWO OF THE JACKSONIAN VARIETY; ONE DUE TO OLD MENINGEAL HEMORRHAGE; IMPROVEMENT.

BY J. T. ESKRIDGE, M.D.,
OF DENVER, COL.;
PROFESSOR OF NERVOUS AND MENTAL DISEASES IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF COLORADO; NEUROLOGIST TO THE ARAPAHOE COUNTY AND ST. LUKE'S HOSPITALS.

THE resources of the pharmacopeias have been exhausted in endeavoring to cure epilepsy, but as yet no drug has been found upon which we can rely. The bromids, either alone or in connection with other agents, such as antipyrin, chloral and borax, still rank first; but these often fail in giving more than temporary relief. All cases of epilepsy treated successfully or unsuccessfully by surgical measures should be reported in detail, so that, from a knowledge of the causes of the successes and failures, we may ultimately be able to determine the conditions favorable for operative procedure. In the hope of adding something of value to this important subject, I submit the following cases:

CASE I. *Epilepsy of eighteen years' standing, in a woman thirty-three years of age, following a blow upon the left side of the head at the age of five years; seizures beginning in the right hand; excision of cortical center for right index-finger and thumb, followed by complete paralysis, but no disturbance in sensation until six days after operation; great improvement.*—Miss M., thirty-three years of age, single, a domestic, was born in Missouri, but has lived in Colorado twenty-six years. So far as she knows there have been no cases of epilepsy, or mental or nervous trouble in the family.

Her health in childhood was good, and remained so up to her fifth year, when she received a blow on the left parieto-frontal region of the head from a fall. She was sick for some time after this, but knows nothing of the particulars. After this her health was fair until her fifteenth year, when, while sitting one morning tying her little nephew's shoestrings, she has a distinct memory of falling over in a faint and being aroused by her people throwing cold water in her face. She was told that there were no convulsive movements in this seizure. She does not know if this attack was followed by sleep, nor of any direct cause which precipitated it.

One year later she had her second seizure, which she remembers began in the right hand, but she remembers nothing more than a contraction of the finger and thumb of this hand, as she lost consciousness after this occurred. After her second attack she thinks the seizures occurred almost daily, certainly weekly, for the next three or four years. The fits up to the present time have usually occurred daily or weekly, but the woman has had a few periods of two or three months' freedom from the seizures. She states that as far as she remembers all her convulsions have begun on the right side, and, with the exception of a few attacks, they have begun in the right hand. Occasionally a drawing sensation has been first felt in the right foot. The seizure commonly occurs in the morning, occasionally in the afternoon, and very infrequently at night.

There have been no attacks of *petit mal*. The fits are never preceded by headache, but each is followed by headache and a confused condition of the mind, lasting from one to several hours. She has been treated for prolonged periods by the bromids, without any apparent result.

She was admitted to the Arapahoe County Hospital in the latter part of November, 1893. The examination on December 4th, 1893, showed the patient to be rather undersized, poorly nourished, and presenting almost an imbecile appearance. Her memory seemed to be fairly good for past events, but she stated that she had considerable difficulty in remembering things of recent occurrence.

The left side of the head over the parieto-frontal region was not so well developed as the corresponding region on the right side. There was no ataxia. The knee-jerks were both normal. Ankle-clonus was absent, and the other deep reflexes presented nothing abnormal.

The plantar and the superficial reflexes of the abdomen were absent. The dynamometer registered, R., 70; L., 58. Sensory phenomena, including the special senses, were normal. The ophthalmoscope showed no change in the optic nerves or fundi except a slight paleness of the discs. She was placed on thirty grains of sodium bromid and ten grains of borax, thrice daily, but the convulsions continued to recur two or three times daily. Several of these were witnessed by an intelligent trained nurse. A description of one will suffice for all, as there was but little apparent variety in the character of the convulsive seizures.

According to the patient's account, the first sensation she experiences is a sensation of tingling and numbness in the fingers and thumb of the right hand, and immediately this hand begins to close and her arm to flex at the elbow. She remembers that always, if she is standing at the time this sensation comes on, she has presence of mind enough to sit or lie down before she loses consciousness. She remembers

[1] Read before the meeting of the Colorado State Medical Society, held in Denver, June 19, 20, and 21, 1894.

nothing of any of the attacks after the arm begins to flex at the elbow. She remembers telling other patients in the ward when the attack is beginning.

According to the nurse's description, the patient was standing by the window; she caught hold of her right hand with the left, saying: "I am going to have an attack," walked across the room, and lay down upon her bed. The fingers and thumb of the right hand were beginning to flex and the right arm to bend at the elbow, when clonic convulsive movements began in the right hand and arm, followed by convulsive movements in the right foot and leg and right side of the face, and a few seconds later by convulsive movements in both arms and legs and in both sides of the face. The seizure lasted about two minutes, and was followed by sleep of an hour's duration; later by a dazed condition lasting several hours, during which headache was bitterly complained of. Several convulsions were witnessed from first to last, but they all began in the fingers and thumb of the right hand, the index-finger and thumb always being flexed before the adjacent fingers. After faithfully trying sodium bromid and borax for about thirteen weeks, but obtaining no beneficial results, I explained to her that an operation offered some hope, not in curing the disease entirely, but in mitigating the severity of the convulsions and improving the mental condition. She gladly accepted, and said she would rather die than go through life in her condition. On March 30th, 1894, Dr. Rogers, after strict observance of aseptic precautions, trephined over the middle third of the left fissure of Rolando. The bone was found thickened, but there was no appearance of fracture or abnormal adhesion of dura to the bone. The internal surface of the bone presented nothing abnormal. On applying the Keen double electrode, attached to a Fleming faradic battery, to the dura, points were reached where stimulation induced flexion of the thumb, then of the index-finger, followed by flexion of the other fingers of the hand. By a slight movement of the electrode the muscles of the right arm and right side of the face were made to contract. As the external surface of the dura seemed healthy it was decided to open this membrane.

On exposing the pia and convolutions of the brain everything seemed in a normal condition. On again applying the electrodes I found the centers, irritation of which caused contraction of the thumb and index-finger of the right hand. Dr. Rogers excised a portion of the cortex, about one-half of an inch in diameter and a fourth of an inch in thickness, which included these centers. The wound was dressed, and the patient reacted from the operation fairly well; but the temperature remained rather low until the morning of March 31st, when it was normal. At noon of March 31st she said she was feeling well and free from headache. The right thumb could be extended, but she was unable to bend it except to a very slight extent. The lateral movements of the thumb were completely lost. All movements in the index-finger were lost. The little finger could be extended and flexed to a normal degree, but the movements were weak. The ring-finger was much more limited in flexion and extension than the little finger. The middle finger could be extended and flexed only to a very slight degree.

The extensors of the wrist were strong, the flexors quite weak. All the interossei muscles of the right hand except those that move the little finger were paralyzed. The right side of the face around the mouth was almost completely paralyzed. The upper portion was unaffected. The dynamometer registered R., 2; L., 60. The right elbow and shoulder were apparently normal in power.

Great care was observed in testing the tactile sense the temperature sense, and the posture-sense of the fingers of the right hand, and these were all found to be normal. No loss of tactile sense was observed in the paralyzed portion of the face.

On April 1st the patient was still doing well, with a normal temperature. The entire right hand and the elbow-muscles were now paralyzed. The shoulder-muscles of this arm were weak. The lower portion of the right side of the face was completely paralyzed for voluntary motion, but emotional mobility was still present. Sensory phenomena were again tested and found normal.

On April 2d the temperature was 97.2° F. The woman seemed stupid, and complained of considerable headache. As Dr. Rogers and I were unable to account for the low temperature, severe headache, and evidences of depression which she presented, and the absolute paralysis of the entire right arm, which now included all the shoulder-muscles, paralysis of the right side of the face, protrusion of the tongue to the right and thickness of speech, we were fearful that meningeal hemorrhage had occurred and that the effused blood was exerting pressure on the brain.

We decided to wait until the next day, April 3d. At this time, finding the temperature still depressed and the other symptoms the same as on the previous day, Dr. Rogers, on opening the wound, found everything in a normal condition, with the parts healing by first intention, and not a drop of pus. In a few days the woman rallied from this depressed condition and went on to uninterrupted recovery.

On April 5th the paralysis was still complete; the tactile sense was apparently preserved in the paralyzed parts, except on the tip of the ring-finger, where two points of the esthesiometer were perceived as one, even when held apart twice the normal distance, but even on this finger the contact of a substance was recognized at once. On the tip of the little finger the contact of the blunt points of the esthesiometer was not recognized, but when they were moved slightly the two points gave the impression of one. The temperature-sense and the posture-sense were perfect.

On April 6th the motor and sensory phenomena were the same. On April 7th tactile sense was normal. The paralysis remained the same, that is, absolute in the right hand and arm, including the shoulder. The lower portion of the right side of the face was still paralyzed.

On April 12th she was first able to move the right arm at the shoulder, and by the 15th she had gained almost normal power in the shoulder and

elbow muscles. The sensory phenomena had been investigated daily and found normal. On the 16th: She had had no convulsion since the operation, but during this afternoon, after Dr. Rogers removed the stitches and rubbed the scalp over the cicatrix briskly for a while, she remarked: "I feel that my arm is going to be cramped," and almost instantly the flexors of the right hand began to contract. The movements began in the right thumb and index-finger, and the spasm was tonic in character. It was followed by contraction in the flexors of the wrist and elbow and adductors of the right shoulder. The movements passed to the right leg, left arm, left side of the face, but just in what order the muscles were affected was not observed. At this point the head turned to the left, she uttered a cry, and went into a general convulsion, which lasted about two minutes, and was followed by a few minutes' sleep. After the convulsion she remembered that the doctor was rubbing her head and that she told him her arm was going to be cramped. This was the last thing she remembered before the convulsion. The first thing she remembered after the convulsion was being in bed several hours after the fit. The convulsion was followed by headache as usual.

On the 18th she had another convulsion, at 9 A.M., similar in every respect to the one of two days before. She was now placed on the solution of borax and bromid which she was taking before the operation.

On the 22d she was able to move the little finger of the right hand and extend and flex the wrist. On the 26th the little finger, the ring and middle fingers had regained some power, and the index-finger and thumb could just be moved, but the interossei were paralyzed. The dynamometer showed R., 2; L., 60. The sensory phenomena still remained normal.

On May 18th she had her third convulsion, which began in the thumb and index-finger of the right hand. On May 22d the dynamometer registered R., 44; L., 60. She was unable to completely extend the index-finger of the right hand, and in closing the fingers of this hand the index-finger moved more slowly than the other fingers. The power in the index-finger was fairly good, but the movements were awkward. Flexor movements in the right thumb were about normal in strength, but slow. She was unable to extend the thumb to any extent unless the fingers were extended at the same time. The extensor muscles of the thumb were very weak. She was unable to use the thumb and fingers for such movements as sewing or buttoning her clothes without experiencing considerable difficulty. She was unable to use the thimble on the fingers of the right hand. All sensory phenomena were still normal. The pupils were rather large, the left slightly larger than the right. The most marked improvement at this time was in her appearance and mental condition. She was now hopeful, bright, and cheerful, and said her memory was better; she did not seem confused. Her face had lost, to a considerable extent, the melancholy and imbecile appearance. On June 3d her condition remained about the same as on May 22d. No convulsion had occurred since May 18th.

The convulsions in this patient occurred several times in each week, and sometimes daily, before the operation, although she was taking thirty grains of sodium bromid and ten grains of borax thrice daily. Since the operation only one convulsion has occurred since she has been placed on the same treatment, during a period of two months and a half. While the operation has not removed the entire cause of the epilepsy, it has so modified it that with appropriate treatment sufficient relief can be obtained to enable the patient to earn her own living. The mental improvement is decided. One of the most interesting points in connection with this case is a physiologic one, and consists in the tactile sense remaining perfectly normal in the index-finger and thumb of the right hand, although the cortical centers that seem to preside over the muscles that move these members were completely excised, and the muscles themselves left absolutely paralyzed. The only disturbance of sensation that occurred at all was a slight blunting found on the end of the ring-finger on the sixth and seventh days after the operation, and an inability to recognize a substance on simple contact with the tip of the little finger during these two days.

It seems to me that if tactile sense is governed by the same cortical centers that regulate muscular movements it would be impossible for excision of these centers to leave sensation perfectly normal. In all cases of cortical injury of the motor region coming under my observation, in which tactile sense has been affected, the injury has been attended with a blow or shock, and in this way the interference with tactile sense may be accounted for without attributing to the cortical motor centers sensory function.

The subjective sensory phenomena often experienced in the parts which are the seat of the initial spasm in Jacksonian epilepsy are interpreted as indicating that the motor cortical centers also contain sensory centers. It seems to me that in the absence of sensory change in excision of a motor center we are justified in looking for another explanation of these subjective sensations. All voluntary or reflex muscular movement is the result of centripetal impressions, and it is probable that sensory impressions that excite the activity of a motor cortical center go to the sensory center with which the motor cortical center is connected before reaching the latter. If this be the case it does not seem strange that irritation of a motor cortical center causing muscular movement should give rise to subjective sensations in that portion of the brain through which all impressions must pass to reach the motor center in question. I do not wish to convey the impression that I believe the sensory centers are as definitely located in certain portions of the brain as we have

reason for thinking the motor centers are, nor that the latter have no sensory function, but I do desire to call attention to the fact that such phenomena as were observed in the case just reported seem to prove that the alleged motor-sensory function of the Rolandic region of the cortex needs further investigation and careful study before we can accept the dual function of the Rolandic region as settled.

Case II.—Thomas N., twenty-nine years old, married, born in England, by occupation a miner, came to Colorado sixteen years ago, and has lived at an altitude varying from eight-thousand to nine-thousand feet.

His family history is negative. He denies syphilis and excess in alcoholic indulgence, but admits gonorrhea and excess in venery. He says that he enjoyed good health up to the time of the receipt of an injury to his head which has given rise to his present trouble. He was injured in April, 1890, by a falling rock, while engaged in blasting. He received injuries to the right shoulder, right eye, and right side of the head, and was rendered unconscious for several days. After this he was in a semi-conscious condition for one or two weeks longer. The physicians told him that the right parietal bone was fractured, with considerable depression of the bone at this point, and that they took out a small button of bone and elevated the depressed area.

During the three weeks that he was confined to bed he suffered but little with headache. With the exception of occasional dizziness, he remained comparatively well until August, 1890, a period of four months, when he felt very dizzy, but did not lose consciousness, was sick at the stomach, and vomited for one or two days afterward. In September, 1890, while in California for his health, he had a sick and dizzy spell, in every respect similar to the one he experienced in August. In November, 1890, while walking along a street in San Francisco he began to feel very sick at his stomach, and attempted to seek a retreat, but a minute or two later he fell in a convulsion and became unconscious. His wife, who was with him at the time, says the convulsion affected all the limbs, but she did not observe whether it began in one limb or in all at the same time. He remained unconscious an hour after the convulsion. No headache preceded the attack, but a severe headache followed it, and lasted for a day or so. Twelve days later he had a second convulsion, and one month after the second a third occurred. After this the attacks began to be more frequent, and occurred once or twice each week. They were held in check at first by the bromids, but later these seemed to lose their effect. All the attacks were preceded for a few seconds by a sick stomach, attended by general convulsive movements, and followed by unconsciousness, or disturbed consciousness and sleep, lasting for a few hours, and headache lasting for a day or more. There had been no constant headache. Between the attacks he felt fairly well. On an average he had about two convulsions each week.

On August 27, 1891, the existing conditions were noted as follows: He is a healthy, well-built young man, decidedly muscular, but is irritable, and his memory is uncertain and poor.

On the right side of the head, just back of the middle third of the Rolandic fissure there is an old scar, and the bone seems considerably depressed for an area of one or two inches in diameter. Over the center of this depression there is a space of a half-inch in diameter where the bone is absent, indicating the site where he was trephined at the time of his injury. The gait is perfect. There is no ataxia. Knee-jerk of the right is increased, of the left greatly exaggerated, and by measurement twice as great as the right. Ankle-clonus is present on each side, but much more marked on the left than on the right. Plantar reflexes are absent on each side. All the sensory phenomena, including the special senses, are nearly normal. The dynamometer registered R., 180; L., 200. The old injury to the right shoulder probably accounts for the deficient strength in the right arm and hand, as he is right-handed. The fundi, discs, and fields are normal. There is no paralysis of any kind of the ocular muscles. There is no affection of the face or tongue muscles.

He was admitted to the Arapahoe County Hospital, August 31, 1891. On September 2d, at 9 A.M., three days after entering the hospital, he had a convulsion which was witnessed by two trained nurses and the resident physician of the hospital. The first sensation experienced by the patient was a dizziness and the sensation of specks floating before the eyes, but he did not feel sick at the stomach. He called to the nurses and informed them that he was going to have an attack, but lost consciousness before muscular contraction began. He was standing at the time, and fell; and almost simultaneously with the fall the muscles of the left thumb began to contract and pull the thumb across the palm of the hand; immediately following this the flexor muscles of the left hand, wrist, and elbow were contracted, and next in succession the left foot began to jerk. Then the muscles of the right side of the face and the entire right side of the body were affected, but just in what order the nurse was unable to observe. He was deathly pale on falling, but the pallor was soon succeeded by congestion and lividity of face. The muscular contraction lasted about one or two minutes, and he was more or less unconscious for fifteen minutes, and was drowsy for a short time afterward, but did not sleep.

On September 5, 1891, at 12.30 P.M., the temperature of the ward being 70° F., the temperature of the mouth was 99.5°, of the right axilla, 98.9°, of the left 99°. The pulse was 84, the respirations 18. The head-temperature, in the right Rolandic region, was 97.2°, left 97.4°, frontal 96.6°, occipital 97°. The head-temperature showed considerable elevation above the normal, but afforded no means of localizing the seat of irritation.

An operation was advised for the relief of his convulsions, to which he readily consented. He was told that the operation would probably not cure his convulsions, but might greatly relieve them. As the site of the injury to the head was nearly over

that portion of the Rolandic region which controls the left hand, the seat of the initial spasm, it was decided on consultation with Dr. Parkhill, the attending surgeon, to trephine over the depressed bone. On September 6, 1891, the bone was exposed by Dr. Parkhill by means of a large flap, base downward, and it was found that the old fracture was quite extensive, with a depression of bone having an area, quadrangular in shape, two inches long by one and three-quarters in width. The depression of bone seemed to be about one-eighth of an inch greater at the lower than at the upper portion of the fracture. The Rolandic fissure bordered the anterior line of the depression, leaving the greater portion of the depression posterior to the fissure; the portion of greatest depression, however, was in the lower portion of the middle third of the fissure of Rolando. The depressed area in its longest diameter was parallel with the fissure of Rolando.

At the lower portion of the depressed bone a small trephine opening was found about one-half inch in diameter. Here the dura was exposed, and slight pulsation of the brain could be felt through it. Both upward and downward, from the area of the depressed bone, lines of fracture could be traced. A circular piece of bone one-and-a-half inches in diameter was removed by means of a trephine. The center of this was at the lower and anterior margin of the depressed area of bone. The under surface of this button of bone was comparatively smooth, showing less depression of the internal than of the external table. The dura beneath seemed comparatively healthy. The edges of the old trephine-opening were depressed, as were portions of the bone around the trephine opening just made, and to these edges and other portions of the depressed bone the dura was firmly adherent. By means of the rongeur forceps the trephine-opening was enlarged to two-and-a-half inches in diameter, thus removing all the bone that seemed to be depressed. The dura everywhere in this area seemed normal in appearance, and it was decided not to open it. The brain pulsations could be seen and felt. It was thought best not to open the dura at present, but wait and see the effect of removal of the depressed bone, so that more time could be allowed to study the convulsions, if any should occur, in which case, if the initial convulsive seizure should affect the same muscles each time, it was proposed at the second operation to remove the cortical centers for the muscles in which the convulsive movements first appeared.

The first week after the operation the patient had a convulsion, but it was light in character, and it is not known whether it began in the left hand or not. About a month later he had his second convulsion. Following the second, he had a convulsion every two or three months, but each one seemed much lighter than those that occurred before the operation. His mental condition has much improved, and he has now returned to work as a miner, and is able to earn a living for his family and himself. On May 21, 1894, Dr. John P. Kelly, of Golden, writes me: "Thomas N. is now working in a mine in the mountains. He had a convulsion two weeks ago, which was the first that he has had for six months. Until this occurred I had thought he was permanently cured."

This case, while not entirely cured, is greatly relieved, and the results fully justify the operation.

Case III.—L. A., four years of age, in February, 1891, began, when two days old, having spasms, which continued in rapid succession for two days.

One year ago he commenced failing and developed epileptic attacks. After the spasmodic seizures he would be unable to get up for a week. These attacks occurred one or two weeks apart. Six months ago they became very severe and increased in frequency, often occurring two or three times a day. He would fall on the right side of the face, and the mother thinks the right leg was affected. The head is small, and the child presents an idiotic appearance. Vision is exceedingly poor; and both eyes are affected with horizontal nystagmus. Dr. Parkhill, on October 9th, 1891, performed linear craniectomy on the right side of the head of this boy (see the report, The Medical News, February 27th, 1892). The convulsions were lessened in frequency and severity. Some months later the same surgeon performed a similar operation on the left side of the head. This still further lessened the convulsions and improved the mental condition of the child. After the second operation his convulsions were much less frequent and severe for nearly a year; after this they again recurred with considerable frequency, and affected the right arm and leg more than the left.

About a year ago, as the left parietal region was less prominent than the right, Parkhill removed a strip of bone about one-half inch in width and two inches in length which covered as nearly as could be determined the left fissure of Rolando. After the last operation the convulsions ceased for some time, but they have since recurred. They are now less frequent than formerly, and it is only very occasionally that he has a severe convulsion.

As the injury to the brain of this patient occurred when the child was only two days old, and was bilateral and quite extensive, it is evidently permanent, so that nothing more than slight amelioration of the convulsions could be expected by an operation.

ELECTRICITY AS A COSMETIC.

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The skin is frequently subject to morbid conditions, to depression or perversion of nutrition, which impair or destroy whatever advantages of person may have originally existed. Many of these conditions can scarcely lay claim to the title of actually developed disease, but are, so to speak, on the border-line. They undoubtedly depend upon faulty nutrition. The defect may be purely local,

or it may be associated with a more or less perceptible deviation from the normal standard of general health. As a rule, some systemic disorder underlies a faulty action of the skin. Although the failure may be scarcely perceptible, it is, nevertheless, present.

The blemishes of which we shall treat in this paper often prove very unyielding to treatment by means of drugs. We possess, however, in electricity an agent much more powerful than medicinal substances. Electricity is peculiarly qualified to improve the nutrition and promote the functions of the skin, because it acts directly upon the part affected, and also indirectly through the system at large. The topical application of electricity stimulates the capillary circulation through the integument, and overcomes any engorgement that may exist. It awakens the activity of the absorbent vessels, and enables them to remove morbid deposits. It acts favorably upon the nerve-fibers and their peripheral terminations, and exerts a beneficial influence upon the cells. By its tonic influence upon the heart, bloodvessels, and general circulation, electricity tends to maintain the normal type of nutrition in the skin as well as in other tissues. These properties enable us, by means of electricity, to relieve certain aberrations from the standard, trivial in themselves, and yet capable of causing much annoyance.

There is a dull, discolored, as it is often aptly termed, muddy, hue of the skin that nullifies the effect of regular features, and is not infrequently associated with a dejected or peevish expression. Some disorder of the digestive system is usually the foundation of this appearance of the skin. It is especially prone to occur in persons of dark complexion. Individuals thus affected require a total change in habits of life. It will often be found that they are of sedentary occupation, are overworked, and anxious. All the rules of hygiene must be strictly enforced, but there is no measure capable of so rapidly, so surely, and so effectually improving the complexion as electricity. In these cases there is undoubtedly some failure of general health, yet the subjects may scarcely be conscious of the fact. They are able to attend to their duties, and mingle in society, yet the dingy skin is a source of mortification, particularly in the case of females. If the discoloration is uniform, or nearly so, upon the surface, it must depend upon the action of a general cause, and the electricity should be applied to wide areas by means of rollers or sponge electrodes. As it is upon the face that the individuals especially desire improvement, it is well to make the applications, above all, to that part of the body. The neck and shoulders, the hands and forearms, likewise require attention. In such cases the use of the metal cylinder constitutes a good means of affording the benefits of electricity. Galvanism is the preferable form in which to employ this agent. A somewhat similar discoloration may be relieved by the same procedure. I allude to the sallow or slightly icterode tinge so often manifested by persons of deficient hepatic activity, with a tendency to depression of spirits and symptoms of lithemia. The subjects are generally brunets, and the blending of yellow and brown gives them a distinct physiognomy. The employment of the galvanic current, the anode or positive pole being placed over the region of the liver, and the kathode or negative pole over the discolored surface, is followed usually by the best results. Cases of this kind often occur in families in which hepatic difficulties are common. The diet, and habits as regards eating, need to be rigidly supervised. This regulation, in conjunction with galvanism, causes the sallowness to disappear.

The direct effect of the galvanic current is beneficial in another slight, but common condition, and the source of much mental disquiet. This is a greasy and shining appearance of the face, particularly the forehead and the tip and sides of the nose. Unfortunately, it is most common in women, and, above all, in young women. It occurs most often in those of dark complexion. This blemish denotes the existence of a slight degree of *seborrhœa oleosa*. Although restricted to but a small portion of the body, it is, in most instances, connected with some deviation from health, and not seldom such patients are anemic or chlorotic. Another annoyance connected with the presence of oily matter upon the face is the disposition of particles of dust to readily adhere to it, so that a dirty as well as greasy aspect is the result. Comedones are very liable to form under these conditions. The gaping orifices of the sebaceous ducts are often prominent, and from this appearance alone one is almost justified in diagnosticating impaired health. The stimulating influence of galvanism corrects the relaxation of the ducts, improves the nutrition of the glands, and restrains their secretion within the normal limits as to quantity and quality.

A sluggish peripheral circulation, dependent upon an atonic state of the vessels and a flabby condition of the heart-muscle, finds expression in a red-tipped nose, which, upon exposure to the cold, becomes purple. This, again, is an affliction most common in women, who are often themselves responsible for the trouble by their neglect of exercise. The red nose is most common in thin, anemic, or strumous blonds. The local and general application of galvanism is the most powerful means at our command for restoring the strength of the circulation and causing the habitual congestion to disappear.

An eruption of red papules is often seen in young women of from eighteen to twenty-two years of age. The patients are, for the most part, blonds, of a fair and delicate skin and blooming complexion. Their beauty is marred by the development, from time to time, of red spots upon the face, neck, and shoulders. The lesions are usually small and seldom suppurate. The spots are not numerous, are of a rose color, and are all the more conspicuous on account of the contrast with the white surface upon which they are seated. They cause extreme annoyance to their possessors. The patients are of a susceptible, nervous organization, frequently commit dietetic errors, and sometimes suffer from ovarian congestion or neuralgia. These cases receive more benefit from the direct employment of the faradic current than from any other method of treatment.

In the different forms of acne much good is accomplished by the use of electricity. The papules and tubercles undergo retrogression, suppuration is arrested, and itching and smarting are relieved. The faradic current, applied both centrally and locally, may be advantageously employed under these conditions. In some cases I derive better results from the alternate use of the faradic and galvanic currents.

One sometimes encounters cases of *rosacea* in the first or second stage in young women. Occasionally they complain that the rash is accompanied, in the afternoon and evening, by a sense of burning. Dilated and varicose capillaries may often be detected and small acne-pustules develop, from time to time, upon the affected surface. The irritable condition of the sebaceous glands may give rise to a greasy, shining appearance of the skin. In such cases no treatment is equal to galvanism, the anode being placed upon the back of the neck and the kathode upon the seat of disease. If the congestion is great and is disposed to linger, I am in the habit of also incising the skin with the needle knife, encouraging local depletion by sponging with hot water. The distended bloodvessels can be obliterated by passing into them a fine needle which is connected with the kathode of a galvanic battery of from six to ten cells.

Static electricity is of value in relieving the dryness and roughness of the skin so often found in scrofulous subjects. The application, moreover, exerts a decidedly beneficial systemic influence. Small growths, like warts and localized thickening of the integument, can be removed by the alternate use of the static and galvanic currents. Corns upon the toes, and corns or callosities upon the soles are amenable to the same treatment. Sparks are applied daily to the affected regions, and the *séance* is terminated by the passage of the galvanic current. Callosities form upon the fingers as the result of habitual irritation due to occupation. This result is seen, for instance, in professional performers upon stringed instruments, as the banjo, guitar, violin, and harp. Seamstresses and tailors, also, acquire a similar condition from the constant use of the needle. The epiderm is sometimes thickened in consequence of the continued friction between adjacent folds of the skin, as beneath the breasts, in the groins and armpits, between the nates, and upon the perineum. Cases presenting this condition may be treated successfully in the manner indicated. Galvano-puncture affords likewise an effectual means of dealing with warts. The alternate use of franklinism and galvanism is an effectual mode of treating scars, those that are indurated and hypertrophied being especially appropriate to this treatment, inasmuch as they usually prove unyielding to other measures.

Pigmented spots or patches upon the skin seriously detract from or even destroy personal comeliness. The simplest and most common form of pigmentation we see in the familiar freckle. The disfigurement produced by freckles depends much upon their number and size. A few freckles upon the fair face of a young girl may not be unsightly, but when they are sprinkled copiously over the face and upon the backs of the hands, they must undoubtedly be regarded as serious blemishes. In extreme cases, neighboring spots may run together, form blotches of considerable size, and communicate a dingy appearance to the skin. Freckles may be removed, it is true, by the action of mild caustics, but they are very likely to be reproduced, and, indeed, some of the methods that have been employed encourage a subsequent deposit of pigment. The spots are most effectually and permanently removed by the use of galvanism, applied in a manner to be presently described.

Chloasma is, as regards pathologic histology, an enlarged freckle or an aggregation of freckles. In respect to its etiology it differs from the latter in being often associated with disordered health. Both affections result from a deposit in excess of the normal pigment in the cells of the *rete mucosum*.

The application of the galvanic current will, in the majority of cases, be followed by the permanent disappearance of the discolored spots or patches. In these cases I usually employ galvanism by means of a nickel plate, or by what is even better, a nickel-plated cylinder attached to the kathode. I rotate the cylinder to and fro over the large spots in order to avoid giving the patient pain from concentrating the current upon the integument. Occasionally the metal is left in contact with the pigmentation long enough to give the impression of warmth to the skin. To freckles I am in the habit of applying a strength of from 10 to 15 milliampères every day

or two, the sitting lasting from three to five minutes. In chloasma the strength may be increased to 15 or 20 milliampères, applied in the same way, with the same frequency and for the same period as in the treatment of freckles.

Another form of pigmentation is sunburn, or a "coat of tan," so common a result of a summer's outing, especially if much time has been spent upon the water. A sun-browned skin may be justly preferred to a chalky or a pasty complexion. Nevertheless, the "nut-brown maid" will presently begin to inquire whether some means does not exist by which the disappearance of the sunburn may be accelerated. The sharp contrast, especially in the blond, between the hue of the face and that of the neck, shoulders, and arms, is an additional argument for the removal of the brown color. The same procedures found successful in the treatment of freckles and chloasma will generally prove equally efficacious in removing the effects of exposure to the sun.

Pigmented and hairy moles are sufficiently common defects. A small, smooth mole, destitute of hair, and situated upon the back of the hand, may almost escape notice. If seated upon the face, however, and if covered with hair, they constitute a serious blemish. They are often met with in brunets, and a young lady who possesses regular features, sparkling black eyes and luxuriant tresses, with a brilliant complexion, may have her charms diminished by a large, dark, and hairy spot located upon the chin. Hairy moles may be removed *in toto* by the knife, but many will object to surgical intervention, which has, moreover, the disadvantage of sometimes leaving a scar. In such cases we may usually succeed in bringing about the gradual disappearance of the objectionable spot by the use of the galvanic current or the galvano-cautery.

That variety of birth-mark known as port-wine stain or claret-stain, as well as the more formidable tumor composed of dilated bloodvessels or lymphatic vessels, sadly disfigures the face. Surgical interference often proves ineffectual or only partially successful, is accompanied by profuse hemorrhage, and is followed by cicatrices. In galvanism we possess a treatment for these lesions to which no objection can be urged and which may be relied upon to correct the defect. The current may, according to the circumstances of the case, be applied by means of the sponge electrode or by galvano-puncture.

Excessive activity of the sudoriferous glands constitutes a cosmetic defect. In well-marked cases an abundance of fluid is poured out upon the skin in certain favorite locations. The face, axillæ, genitalia, hands, and feet are particularly prone to be affected. The streaming surface becomes pale and wrinkled, and in some regions an offensive odor is generated, forming an additional affliction. Another form of annoyance is that the sweating is limited to one side of the face. This affection of the sudoriparous glands is often linked with anemia or some other constitutional disease. The systemic and local effects of electricity are therefore to be commended in the treatment of this troublesome and often rebellious condition. I have in many instances witnessed the most decided improvement in consequence of the persistent use of electricity in the form of galvanism or an alternation of galvanism and faradism Static electricity is also a valuable therapeutic resource in hyperidrosis of the hands or feet.

Electricity is no less potent in affections of the hair. With comparatively little alteration of the scalp, the nutrition of the hair will often fail and the individual will begin to dread the development of premature baldness. The scales of dry seborrhea will fall upon the shoulders, the hair will lose its luster, will become dry and dead-looking, will look rough and ragged, will break or split at the ends, and will be plucked from its roots in the simple act of combing. If this condition be neglected premature alopecia will be the result. In other cases the loss of hair will be limited to certain spots, and the peculiarly unsightly patches of *alopecia circumscripta* will be the outcome. No method of treatment is so successful in checking the progress of baldness as the application of electricity, which increases the nutrition of the scalp and the hair-follicles. No case need be regarded as hopeless in which atrophic destruction of the follicles has not occurred. Nevertheless it is advisable that treatment should be begun at an early stage in order to avoid unnecessary loss. Falling of the hair is regarded as a grievous misfortune by women, who are thus threatened with the loss of one of Nature's ornaments. In men the process may attack not only the head but also the beard. Both faradism and galvanism are admirable tonics to the hair-follicles. In beginning treatment it is my custom to use only mild currents. A galvanic current of the strength of not more than from 10 to 20 millampéres may be applied by means of moistened sponge electrodes, or what is, perhaps, a better method, through a brush having metallic bristles. Faradic currents may likewise be conveyed in the same way through a wire brush, the moistened sponge electrode being held in the hand of the patient or on the back of the neck. The brush is slowly passed over the scalp until the skin is reddened.

Used in the same manner electricity serves to arrest the approach of premature grayness. As the loss of color is feared by women almost as much as baldness, they can very readily avail themselves of the advantages of electric treatment. This method prevents early grayness by a tonic influence upon the entire hair-forming apparatus.

ICE-COLD APPLICATIONS IN ACUTE PNEUMONIA.[1]

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While cold applications in the treatment of pneumonia are by no means a new procedure, I am of the opinion that this has not yet received the consideration and extensive introduction which it merits, and in saying what I have to say to-night I trust that I am loyal to that spirit which prompts one to conservatism in the commendation of any curative measure until it has stood the test of experience; when, however, one has observed the magic changes which follow in the pneumonic condition under the beneficent influence of cold locally applied, as has been done by others as well as by myself on numerous occasions, I feel that this method has passed the experimental stage of clinical medicine, and I therefore hope that you will pardon me for appearing obtrusive when I again direct your attention to this subject.

Cold has been employed in the treatment of pneumonia for various purposes and in various ways. Jürgensen believes that the chief danger in this disease arises from the high fever, and which finally leads to cardiac failure. He appeals to the experiments of Zenker and others to show that high fever is detrimental to the fibers of the heart-muscle and to those of the voluntary muscles. He, therefore, recommends cold principally with a view of reducing the pyrexia. It is a question, however, whether a high temperature of itself is more fatal in pneumonia than a low one, but this is a point which will be referred to later on. So far as I know Niemeyer was the first to apply cold immediately to the chest for the purpose of reducing the activity of the local inflammatory process in the lungs.

It must be seen that these different views govern the practitioner in the mode of applying this remedy. If he believes in the constitutional nature of the disease, and especially if he thinks that the high fever endangers the integrity of the heart-muscle, his principal aim is to reduce the fever at large, and to accomplish this he immerses his patient periodically in a cold bath, which is done by Jürgensen and others. If he holds that the local trouble in the lung is responsible for the high fever, and that this constitutes the vulnerable point in the disease, he will pay less attention to the general condition and make his cold applications directly over the inflamed lung.

I believe that much of the ill-success which has followed the use of cold in pneumonia is attributable to the fact that it was employed according to the first method. The pyrexia of pneumonia is not the same as that of typhoid fever, or at least it does not yield to cold in the same way as that of the latter does. The former is best subdued by cold being applied directly over the affected lung, as well as to the head, and general baths or spongings do not seem to be essentially indicated, and if the latter are applied they do not keep the fever down for any long period. If the fever and a great deal of the constitutional disturbance of pneumonia depends on the inflammatory process in the lung, then an abatement of the pulmonary disorder will strike at the very root of the difficulty, and it is clear too that the measure which accomplishes this must be applied continuously and persistently, and not, as in typhoid fever, at stated intervals. Moreover, it is a hazardous procedure to subject a pneumonic patient to the bodily changes and cardiac strain which are incidental to the giving of a general bath. It must be remembered that the heart is always implicated in pneumonia, and is therefore a weak and easily assailed organ.

How, then, is the cold to be applied, and how long must it be continued? The affected area must be surrounded with ice contained in bags which are wrapped in towels. If the disease is confined to the front base on one side, one good-sized bag will suffice; but if the exudation extends to the side and back, then at least one more bag must be applied laterally and as far back as possible. If the affection is extensive, put on as many ice-bags as are necessary to cover the whole area. Watch the morbid process, for it is very apt to migrate from one spot in the chest to another, and if it does so, follow it up with the ice-bag.

The length of time for which cold is to be used must, in most cases, be decided by the amount of fever which is present. If this falls to or near the normal point, and shows a tendency to remain there, then the ice may be gradually removed. It is best, however, not to be in too much haste in withdrawing the cold, for frequently before this is off very long the temperature suddenly flies up again. If this takes place, and the temperature remains high after the ice is reapplied for some time, it is a possible indication that the inflammation has invaded a new field, and is not active in the old one. This has happened several times in my experience.

It must always be borne in mind, however, that the ice is not employed solely for the purpose of reducing the fever, but rather with the object of circumventing the exudative process and of hastening resolution in the affected part. There may be very little fever present in some cases of pneumonia, as in the aged, yet the destructive changes are

[1] Read before the Philadelphia County Medical Society, September 26, 1894.

going on in the lungs at a rapid rate. In senile and latent pneumonia the activity with which the ice is employed must be governed entirely by the impression which is made on the pulmonary disintegration. This must be the objective point, and not the temperature.

This brings me to say something on the fever in pneumonia as a prognostic sign. Although a temperature of 105° Fahr. is generally regarded more dangerous in the adult than one of 102°, I really believe that this is an error. When the fever is excessive, as when it rises to 107° or 108°, every one admits that this is almost necessarily fatal; but it must also be granted that a markedly low pneumonic temperature, as for example 95° or 96°, is equally fatal. The safety-point, if such there be, lies somewhere between these extremes; and within a certain range I think we can look upon this fever as an indication of the degree of vital resistance which is present in the body. If it remains between 104° or 105°, the prognosis is good, provided other conditions are equal; but if it is either very high or very low it is evidence of serious exhaustion and of vital inadequacy to cope with the destructive forces.

This opinion is partly confirmed by the high authority of Dr. Wilson Fox, when he says (*Diseases of the Lungs and Pleura*, page 352): "The extent of the pyrexia has a less unfavorable influence on the prognosis than might be expected." Out of a total of 353 cases he shows, on the same page, that the mortality from 107° to 110° was 100 per cent.; from 106° to 107°, 42.8 per cent.; from 105° to 106°, 18 per cent.; from 104° to 105°, 7.4 per cent.; from 103° to 104°, 17.6 per cent.; and under 103°, 36.9 per cent.

What, now, is the local action of cold on the pneumonic process? This, I believe, consists in its powerful influence on the pulmonary capillaries and in its ability to resolve the exudate and infiltrate. It is well known that the most apparent lesion in acute pneumonia is an enormous distention of the pulmonary capillaries, with partial or complete stasis of the blood in these vessels, exudation of fluid constituents of the blood, and proliferation and accumulation of epithelial cells, and diapedesis of white and red blood-cells in the alveoli and bronchioles. Now, it is well known that cold has the power of contracting bloodvessels, and from this action it can be understood why it should be of benefit in pneumonia. But how it can dissolve an exudate or an infiltration is not so clear to me. That it accomplishes this I am firmly convinced. For example, there is a pneumonic area which is wholly devoid of vesicular sounds, and has a flat percussion note and bronchial breathing, indicating beyond doubt that the process has passed beyond the stage of engorgement and into that of exudation or of infiltration, yet the application of ice to this spot will in a remarkably short time develop a new group of physical signs, such as crepitation, reappearance of the vesicular murmur, diminution of flatness, etc. This has not only been observed by myself over and over again, but is also dwelt on by Dr. Lees, who had an extensive experience in the use of ice in this disease, when he says (*Lancet*, November 9, 1889, page 894): "In many cases I noticed a striking arrest in the development of the physical signs," and that the ice-bag "distinctly tends to repress the inflammatory process in the lung."

Is the ice-treatment applicable in croupous or in acute catarrhal pneumonia, or in both forms of the disease? In my earlier experience I inclined to believe that it was only adapted to the treatment of the croupous variety, but further familiarity with the measure taught me its use in the acute catarrhal form. I have also given it a trial in chronic broncho-pneumonia and in pulmonary phthisis, but with rather indifferent results, if not with positive harm in some cases. I must admit, however, that in several cases of this kind it seemed to do exceedingly well. It must be borne in mind, too, that the ice-bag is strongly recommended by the late Dr. Brehmer, and by Dr. Detwiler and others, in the treatment of chronic lung trouble, and with such excellent testimony in its favor it is very probable that many of us do not yet understand the specific indications for its use.

Besides being useful in croupous pneumonia, and in acute catarrhal pneumonia, it also has excellent effects in the capillary bronchitis of infants, and in the catarrhal pneumonia which follows measles, diphtheria, and scarlet-fever.

It is also desirable in this connection to say something regarding the heart in this disease. From the tenor of much that is said and written on pneumonia at the present time, one receives the impression that more is to be feared from cardiac than from pulmonary failure. That the heart's function is impaired no one will, I think, deny. Indeed, this could not be otherwise, for the heart and lungs have a common nerve-supply, are bound closely together by the pulmonary blood-current, and whatever invalidates one must also affect the other; but I believe that the doctrine that pneumonia becomes fatal because the heart is unequal to the work of forcing the blood through the engorged lungs, and all that we are required to do is to stimulate and to goad this organ, unmindful of what is going on in the lungs, is as imaginary in its conception as it is fatal in its practice.

The pulmonary circulation is undoubtedly obstructed, and there is no question but that the heart

chafes, frets, and becomes seriously embarrassed. Dr. Wilson Fox (op. cit., page 285) says: "One of the most important consequences of pneumonia on the circulation is the occasional occurrence of thrombosis in the pulmonary vessels leading to the affected part. This event, caused in all probability by the retarded circulation in the lung, is not uncommon, and may, by extending to the larger branches of the pulmonary artery, be a source of immediate danger from sudden death, and may also in great probability retard the process of resolution and the subsequent convalescence." But is this any reason why we should whip up this organ in the hope that it may perform an impossible task, and stand by and do nothing to alleviate the blockade in front? Is this sound sense or physiologic reasoning? No. We must discard this cart-before-the-horse theory, and make strenuous efforts to remove the difficulty in the lung, and in this way liberate the heart from its entangled situation. To accomplish this very end there is no agent more efficacious than ice; and besides removing the engorgement and even the exudation in the affected lung, it also acts as a powerful stimulant to the heart's function. Indeed it is chiefly for its serviceable influence on the heart that the ice-bag is recommended in chronic lung-diseases by Dr. Brehmer and others.

In conclusion, I beg to say that the external application of cold in typhoid fever has reduced the death-rate from this disease to almost nothing, and I am sure it is not too much to presume that the same remedy, although differently applied, will do the same in the case of pneumonia. My opinion is based on what I have seen in my own practice and in that of others. In my collective report of fifty cases from various sources (see Medical News, June 24, 1893) there were two deaths. Since the publication of this list I have received abstracts of seventeen other cases treated by Dr. Jackson, of Brockville, Ontario, and have myself collected seven cases without a death, neither the histories of which, nor those of Dr. Jackson, had I time to write out since receiving the kind invitation from your Board of Directors to prepare a paper for this evening—making in all seventy-four cases of pneumonia treated with cold applications, and two deaths; or a death-rate of 2.70 per cent.

Now, the death-rate from pneumonia when treated according to current methods is variously estimated from 20 to 30 per cent., hence the results from the cold-water treatment are at least ten times better than those which are obtained by other methods.[1]

[1] In addition to the ice, most of the patients received quinin, a mixture of ammonium acetate, strychnin, digitalis, morphin occasionally, a nutritious diet, etc.

HYPERMETROPIA AND HETEROTROPIA.[1]

By HOWARD F. HANSELL, M.D.,
of Philadelphia

The subject of this communication has been in part presented to the profession in two papers, "The Treatment of Internal Squint," *Annals of Ophthalmology*, January, 1894, and "A Cause of Failure in the Surgical Treatment of Internal Squint," read by title before the Pennsylvania State Society, May 16, 1894. I desire now to bring it, modified and strengthened by added experience, before this Society, with the hope that a discussion may be elicited by which its value as a statement of actual existing conditions and as an explanation of those conditions may be determined. I submit the following two propositions:

1. In constant, or monocular squint, due to hypermetropia, when one and the same eye is always used in fixation, the second eye is invariably turned upward as well as inward.

2. In concomitant, or alternating squint, due to hypermetropia, when either eye is used indifferently for fixation, the squinting eye is invariably turned upward as well as inward, and, with alternation of fixation, the upper deviation is transferred simultaneously with the inward deviation.

Both propositions may be included in one statement; namely, that functional esotropia, or purely lateral deviation of the visual axes, is never found alone, but is always associated with hypertropia.

I make these assertions with a certain amount of diffidence and hesitation, for, while I have been unable to find their equivalents in my reading, it seems improbable that these facts have escaped the observation of the many careful investigators who, following Donders' lead, have so thoroughly studied the etiology of functional strabismus, and I fear that my own researches into literature have been too limited.

I have found allusions to an upward squint complicating convergence, and in Stevens' studies, published in the *Archives*, attention has been called to the same condition; but in no text-book or monograph with which I am familiar is it positively stated that the two must be invariably associated, nor has any author, so far as I know, who has mentioned the upward squint as complicating the internal, suggested an explanation.

If we accept Donders' theory of hypermetropic squint, which is, I believe, universally admitted as correct, and we pursue his line of reasoning to its logical and physiologic conclusion, we shall have a satisfactory explanation not only for the existence of the hypertropia, but also a sufficiently convincing

[1] Read before the American Ophthalmological Society at Washington, May, 1894.

reason for the clinical fact that esotropia cannot be caused by hypermetropia unless hypermetropia also cotemporaneously develops hypertropia.

Pathologic convergence is induced through excessive action of the ciliary muscles, by reason of the anatomic and physiologic relation of the nuclei of the ciliary and interni, when the bounds of relative convergence and accommodation have been overstepped. But the nuclei of other branches of the third nerve participate with the convergent nuclei in this excitation, as is shown in the pupillary contraction.

Now, the elevators of the cornea are the superior rectus and the inferior oblique, and both are supplied with motor force from the third nerve. The depressors of the cornea are the inferior rectus and the superior oblique, only one of which receives impulse from the third. Therefore, excessive stimulation, or hypermetropic stimulation, if I may be allowed to use the expression, must induce not only overaction of the interni, but also of all the muscles supplied by the motor oculi. As the external recti cannot maintain lateral equilibrium, the elevators are for the same reason only in part antagonized by the depressors, and the cornea is rolled inward and upward. Hence, when the visual axis of one eye crosses that of the other within infinity, it must be on a higher plane.

These propositions have been verified by clinical observation. In every case, without exception, that has come under my care during the past few months, in which I have been able to induce the patient to become cognizant of the image which falls on the retina of the squinting eye, perhaps twenty-five or thirty in number, he has described its position as homonymous and on a lower level than that of the fixing eye.

No insurmountable difficulty has been encountered in discovering the false image. It has demanded, however, patience and perseverance, and the use of glasses of different colors—the true image blurred by a dark blue, and the false changed by a bright-red glass. It has occasionally been necessary in the early efforts to bring the false image nearer to the true by prisms, bases out, or to place the light nearer to the patient than twenty feet.

The final and determining tests have always been made without artificial deflection of the false image, so that no doubt as to its horizontal plane could arise from a possible oblique turning of the prism thus used. Rarely, cases may be found in which the projection is false, when, for instance, in convergence the images are heteronymous and no deduction can be drawn from the patient's answers. Here the observer must rely upon objective examination of the deviation of the squinting eye, and close inspection will reveal both esotropia and hypertropia.

Further, I believe the application of the same principle can be extended to an elucidation of the etiology of hyperphoria as well as hypertropia, and help us to a clearer comprehension than we now have of the origin of this perplexing condition. The bases of argument must again rest upon Donders' theory of hypermetropic squint. If hypermetropia in its higher grades can produce a positive deviation of the visual axes, it follows that, in the lower grades, it is responsible for tendencies to deviation, or "phorias," and, logically, the tendency cannot be limited to esophoria, but must include hyperphoria.

The influence of the ciliary muscle in overcoming the low grades of hypermetropia and astigmatism in the young is not sufficiently great to destroy the extra-ocular balance, and the visual axes are maintained in their binocular relation at a cost of nerve-energy that, in patients of neurotic disposition, is followed or accompanied by severe reflex disturbances. But it manifestly produces a corresponding overaction of the other muscles under the control of the third nerve, or a tendency to deviate from equilibrium. In persons of middle age, when presbyopia is commencing and the range of relative accommodation and convergence is limited by loss of accommodation through stiffening of the lens, the effort at contraction of the ciliary muscle, or the nerve-power, is, however, unchanged from that of earlier life, and thus the other branches of the third are stimulated in their accustomed degree. Since, as has been shown, this action includes other than the internal muscles, we have every reason to believe that the asthenopia is muscular and not accommodative, because better vision or less error of refraction in one eye will determine esohyperphoria of the other.

This hypothesis, more rational than any that has been proposed in explanation of the muscular anomalies so frequently associated with hypermetropia, receives confirmation in the effect of paralysis of accommodation and the optic correction of the error of refraction, both in heterotropia and heterophoria. In the former, the cure of the disjointed muscular action by these means alone has been perhaps the most persuasive argument to the universal acceptance of the truth of Donders' theory; and in the latter, correction of hypermetropia and astigmatism has been amply demonstrated to be quite sufficient treatment in the great majority of cases not only for the accommodative, but for the muscular asthenopia, as is so frequently demonstrated by the gradual, and in some cases immediate, disappearance of the symptoms, and by the restoration of equilibrium according to the tests commonly employed.

Before advising operation in hyperphoria, we must

therefore be convinced that it is a permanent and real condition, independent of and uninfluenced by the use of the accommodation, and cannot be transferred from one eye to the other. We may be led into error of diagnosis, even in hyperphoria, by the fact that the hypermetropic patient under the test by artificial horizontal diplopia involuntarily or unconsciously fixes at the moment with one eye, and having determined in our own mind that a right or left hyperphoria is present, all subsequent tests seem to confirm the impression. A constant hyperphoria, just as a constant hypertropia, is plainly consistent with the theory advanced, and it is only in such cases that operation on the superior rectus, either alone or in addition to operation on one or both internal, is admissible.

Recognition of the truth of the two propositions presented in the first part of this paper, and acceptance of the hypothesis offered in explanation, will necessarily modify the methods commonly employed in the surgical treatment of latent and manifest strabismus due to hypermetropia.

1. In so-called constant monocular squint, binocular fixation can be secured and maintained, unless prevented by amblyopia, only by full correction of the optic defect, tenotomy of the interni and tenotomy of the superior rectus of the squinting eye, and possibly of the inferior rectus of the fixing eye.

2. In alternating squint, vertical equilibrium will be restored by correction of the refraction and tenotomy of the interni, each muscle divided to the same extent. Direct surgical treatment of the hypertropia is not indicated under any circumstances.

The endeavor to secure a cosmetic success by confining the tenotomies to the squinting eye only, such as extensive section of the internus, conjoined with advancement of the externus, as recommended by most authorities, is greatly to be deplored.

3. In hyperphoria, operations to secure vertical equilibrium may be made only when it is clearly proved that relief from asthenopic symptoms cannot be secured by less radical measures. And the influence of hypermetropia in causing this condition, and the possibility of alternation of fixation transferring it from one to the other eye, must be borne in mind.

254 S. Sixteenth Street.

Prof. L. Mauthner has been made the successor of Stellwag as Professor of Ophthalmology and Director of the Ophthalmic Clinic in the University of Vienna.

A Monument to Villemin, who first demonstrated the infectiousness of tuberculosis, was unveiled at Bruyères, (Vosges) on September 30.

ORIGINAL ADDRESS.

CHARITY-ORGANIZATION AND MEDICINE.[1]

By GEO. M. GOULD, A.M., M.D.,
of Philadelphia.

No subject is more rich in suggestion and in acute demand than that of the relations of medicine to those dependent upon the community by reason of crime, of disease of body or mind, or of defect, congenital or acquired. Of these classes not one is devoid of medical relations, for as counsellor, as curer, or as preventer, the physician's voice should be heard. If we do not strike hands with Lombroso and say that all crime is due to abnormality of organism, certainly crime and disease have *some* most intimate relations. What are they? What likewise are the subtle bonds that link together disease, physiologic or neurologic, with mental abnormalism? We do not seek to escape from our responsibility for much of the world's blindness; the idiot is physiologically defective; otology and laryngology have not said their last words as to deaf-mutism; every United States pensioner holds a physician's certificate (more's the pity!); have the surgeons done all that is possible for the cripples? Have we no accountability for pauperism, no responsibility for the criminally high death-rates, and no guilt for the criminally low average length of life? In the mysterious tapestry of civilization disease is weaving a thousand miscolored and rotten fibers that mar its beauty, spoil its design, and weaken its strength. Shall we longer permit with careless consent such negligent and fateful weaving? Nay, shall we longer consent to be ourselves such weavers.

And when one faces these problems, how they grow! At first it seems as if the inter-relations of the profession, the dependent classes, and the lay community are few and comparatively unimportant, but with sharp observation we see long and strong bands of cause and effect subtly running out and in, like warp and woof, linking and locking one with another and each with all.

One of the strangest and most dazing truths that soon becomes manifest is that charity as commonly practised is sin. The word, like many another, bears witness to the sad history of mankind. The beautiful Greek word is almost untranslatable into English. Its gracious compassion or tender pity has become simply almsgiving—a thing usually a double curse, degrading both to the giver and to the receiver. To relieve suffering is the delight and the duty of all good hearts; but we must see to it, 1, that the suffering is real and not fictitious; 2, that, if real, it is not deserved; 3, and most important, that by our methods we do really relieve and do not increase the suffering. It is just here that we run across the first principle of the charity-organization societies, which is to make benevolence scientific. It only needs a few bitter experiences (and we have all had many such, I suppose) in relieving supposed suffering without investigation, in giving doles to street beggars, or in cashing checks for unfortunate acquaintances, to give us most convincing proofs that under existing circumstances and

[1] Abridged Presidential Address delivered before the American Academy of Medicine, at its meeting in Jefferson, N. H., August 29, 30, 1894.

as human beings are at present constructed, non-investigating relief increases the evil it thinks to lessen.

Last year at the Philadelphia Hospital I was puzzled at my vain attempts to cure what seemed a case of simple conjunctivitis. After weeks of varied therapeutic measures I suspected and demonstrated that the "tramp" anointed his eyes just prior to each of my visits with a strong solution of soap. In this way he avoided being turned out upon a cold world until springtime came. Another fellow, so long as he remained under treatment, was in receipt of $5.00 a week from the Cigarmakers' Union, and he could at pleasure induce a subacute attack of iritis, filling the anterior chamber of the eye with blood by a very energetic bit of ocular massage. The older surgeons at the Philadelphia Hospital were often puzzled by the unusual difficulty of healing chronic leg-ulcers, until it was found that the owners did not *desire* to have them healed, and prevented healing by tightly binding in the ulcers old-fashioned cents.

It has for years been my practice to give every street beggar a charity-organization card, with promise of relief if he should be found worthy by the agent of the society. Only one has ever returned, and he was set right without any almsgiving. In China the making of monstrosities was a regular business by putting children in pickling vats for years, by breaking and mending their bones, or by transplanting upon their bodies bits of the skin of animals. We are horrified at this, but are we not equally infamous with our dime museum glass-eaters, our foundling-asylums, and our patent-medicine beastliness?

Mendicity is mendacity. The crimes of tramps and street-beggars are only surpassed by crimes of those who give to them. Mendicancy in all its forms and masks is not the result of poverty, but is the cause of poverty. All indiscriminate almsgiving, all wholesale crowd-relief, or collective-relief of want or suffering, is either a forged, to-be-protested promise-to-pay note of sympathy, or it is the payment of wages for something done. Nine times out of ten it is selfish charity, or self-flattery. Foolish people love to flatter themselves that they are kind-hearted. Benevolence is fashionable, and fashionable people—are fashionable!

One of the most debauching and disgusting forms of selfishness is that of indiscriminate philanthropy. For downright diabolism witness the mutual hatreds of two rival professional philanthropists! Almsgiving, on the other hand, is wages: by giving to beggars and tramps we pay for the continuance and increase of beggary and trampism; by Sunday breakfasts we increase hunger on Sunday mornings, and we also secure listeners for our pseudo-religious after-performances; by indiscriminate out patient relief we stimulate the production of disease, hire patients to experiment on, increase our own reputation or that of our hospital, and at one fine stroke pauperize both the profession and the populace; by municipal workshops, State aid to the unemployed and socialistic demagogism we hire people to be unemployed, to strike, and to lessen the sum total of production; by institutionalism gone mad, we hire the people to get rid of their personal duties to their dependents, and hire those on the borderland of breakdown, physical or mental, to give up the last instinct of self-help. We pay for these things and many like them when we give alms and taxes and hire other people to be sympathetic for us. Of course, what we shirk doing ourselves, our hired agents will hardly do better. "Like master, like man."

Appalled by this condition we, perhaps, stumble upon the work of the charity-organization societies, and at once we have a clear statement, both of the etiology and the treatment of the disease. Of all things these societies beg that no living spark of compassion or good-will shall be quenched, and no hand reached out to help shall be permanently withdrawn. There is a profound danger that, chilled by ingratitude and fraud, the foolishly kind shall become the foolishly cruel. If so, it only proves that their former charity was as selfish as their present uncharity. They gave before to please themselves, and refuse help now for the same reason. Charity-organization, as I have said, aims at making kindness effective, benevolence scientific. The heart must inspire, the intellect carry out. The brain is an inhibitory organ whether we view it physiologically, scientifically, or sociologically. But inhibition is regulative, not destructive. In the amelioration of the afflictions of mankind, it is only the intellect that can guide to lasting results, but, like the governor of the engine, it cannot supply the living steam, and it would certainly not advise "no steam."

As stated on the title-page of the excellent little *Handbook for Friendly Visitors Among the Poor*, compiled and arranged by the Charity-Organization Society of the City of New York (published by G. P. Putnam's Sons), charity must do five things:

1. Act only upon knowledge got by thorough investigation.
2. Relieve worthy need promptly, fittingly, and tenderly.
3. Prevent giving unwise alms to the unworthy.
4. Raise into independence every needy person when this is possible.
5. Make sure that no children grow up paupers.

Or, we might say:

1. Don't help frauds.
2. Help so as to make future help unnecessary.
3. Don't hire people to be miserable.
4. Prevent dependency.

All of this, once more, seems to have little medical bearing; but it is only seemingly so. The booklet contains an important and excellent chapter on sanitary suggestions by Dr. Charles D. Scudder. It should be remembered that it is only an A B C book, so to speak, designed only to guide beginners, to interest, and to lead on to the deeper purposes of the organization. I hope every member of the Academy will get and read the book issued by the Johns Hopkins Press, and edited by President Gilman, entitled *The Organization of Charities*, being a report of the Sixth Section of the International Congress of Charities, Correction, and Philanthropy, Chicago, June, 1893. In the last twenty years at least ninety-two charity-organization associations have been formed and are now actively at work in our country, whilst many hundreds exist in Europe. The English Charity-Organization Society is also publishing a series of manuals, of which I mention as of especial interest to physicians, one on the feeble-minded child and adult, and one on the epileptic and crippled. Another volume

is devoted to insurance and saving (intimately bound up with disease and the medical profession), and there are others on food, on medical charities, on the training of the blind, on the dwellings of the poor, on idiots, imbeciles, etc. The most cursory glance at these works will show how deeply into the whole organization of society the seeds of this ideal are striking root, and how intimately blended are they or may they become with those of medicine.

But before we can be very consistent or whole-souled charity-organizers we must first clean house ourselves. We must practise what we preach. There are few more outrageous sinners against the principles of the organization than our profession itself. The London *Lancet* has recently been weeping very profusely over the failure of the public to respond with sufficient liberality in financial support of the hospitals of London. Curiously enough, the epiphora seems to be caused by a

Summary of Tables.

	Hospital Sunday fund award.	In-patients	Relieved.	Cured.	Convalescent-homes.	Remaining under treatment.	Died.	Out-patients visits.	Accidents and emergencies.
General Hospitals	£17,378	49,835	14,027	27,607	4,614	3,476	4,910	1,442,447	222,733
Special Hospitals	11,747	28,426	8,615	14,466	2,611	2,741	1,974	1,203,830	20,876
Convalescent Hospitals	4,069	25,324	7,419	15,421	68	1,288	209	11,974	192
Dispensaries	1,873	.....	.....	.....	.....	.....	.....	1,213 039	
Total	£35,067	103,585	30,061	57,494	7,293	7,505	7,093	3,871,290	243,801

respectably-sized beam in its own professional eye. To justify the tears it cites the number of cases treated in the one hundred and eighty-one London hospitals during 1893. The figures are so huge that it is necessary to quote them in full.

Let us leave out of consideration the in-patients (over 100,000) and the accident cases (243,801), and fix our attention for a moment upon the (nearly) four-million visits of out-patients. It strikes me that if any hysterics are justified in reference to this appalling figure it would be the hysterics of indignation. Can any conscientious physician, can any sane man believe that this number of people have been adequately considered, and had careful diagnoses made, and discriminating scientific treatment instituted? Can he believe that a vast proportion of these patients were unable to pay some fee for the service rendered? The whole affair begins to become ludicrous. The sentimental grimace of the charity-tragedy is plainly broadening into the guffaw of opera bouffe. The cloven foot of selfishness on the part of those lucky or powerful enough to get in charge of these hospitals is all too plainly evident to allow us to be much grieved at the moans and wailings of the melodramatic artist. The competition for these hospital-positions among the physicians of London, and everywhere else, for that matter, is vicious and intolerable. It is a question of *sauve qui peut*, and *After us the deluge*.

But there are some 3000 medical men in London *not* connected with hospitals; what of them and of their professional interests? Go where one will the same astonishing hospital-abuse glares at us. We are debauching and pauperizing both the profession and the public by this gigantic nuisance. Money given for the endowment or support of hospitals is likely to become a curse instead of a blessing to humanity, unless certain provision is made against indiscriminate free treatment. Indiscriminate medical charity is just as pernicious as indiscriminate almsgiving. One is disposed to ask if it might not be well to save much labor by adopting the plan of Louis XIV and Louis XVI, and gratuitously sending out millions of bottles of medicine all over the country, with accurate directions "for the relative indication" for taking, etc. Perhaps, even better, we might farm the entire business out to the American patent-medicine syndicate!

We should also not forget that the absorption of medical energy in the free treatment of disease by those who could pay keeps the profession bound in the treadmill of drudgery and of piddling cures, whilst the nobler and infinitely more important sciences of public hygiene and preventive medicine are left unfurthered or are turned over to the non-medical world. Thus in this blind man's race we rush impetuously to a silly suicide.[1]

[1] Specifically, the chief defects of the hospital-craze are thus set forth by the Charity-Organization Society in a petition to the House of Lords:

1. The promiscuous congregation in out-patient departments of large crowds of persons, who in most instances are suffering from slight ailments for which skilled hospital-treatment is quite unnecessary, is a constant hindrance to medical instruction, increases the discomfort and pain of those who are suffering from severe maladies, and occasions much vexatious and needless waiting.

2. The indiscriminate admission to the benefits of hospitals and dispensaries tempts many who could pay for medical relief to become occasional recipients of charity, and by degrees habitual paupers.

3. The provision of gratuitous medical relief to large numbers of persons, both as in-patients and out-patients, without inquiry or any sufficient regulation, is, as investigation shows, a serious obstacle to the promotion of provident institutions at which medical treatment can be secured by small periodical payments.

4. Hospitals and free dispensaries, as at present administered, usually offer no special advantages to those artisans and laborers who have combined to make provisions against times of sickness, and there is no recognized relation between these hospitals and dispensaries and provident institutions.

5. There is no clear and definite division of the work between voluntary hospitals and dispensaries, and poor-law infirmaries and dispensaries, but the former deal with cases which might more properly be left to the poor-law, and the latter with cases which, from their medical interest, or special requirements, or from the character and circumstances of the patient, might more properly be treated in charitable institutions.

6. By the multiplication of gratuitous and part-pay institutions, and the absence of regulation or organization, those medical men

How difficult it is to get either the profession or the public to take any interest in prevention! Rather than stop the causes once for all, all prefer to peck away at the ever-recurrent effects. Dr. Benjamin Lee tells me that every year the State of Pennsylvania gives $200,000 or $300,000 to hospitals, while all that could be secured for the State Board of Health last year was $6000.

Up to the present generation charity has been a blind, benevolent tyrant; now charity-organization proposes to introduce the justice of freedom, the independence of a true democracy. Instead of charity of the modern sort we are to have the gracious dignity of personal kindness. Instead of a weak sentimentalism that increases the evil, let there be the wise benevolence that prevents it. Instead of vicarious almsgiving there must be a direct and personal helpfulness that usually leaves out of the count all financial dealings. The ideal seeks to cure where it can, but always to prevent the deplored evil.

What is the evil? Dependency. It is, as I have said, a duality of shame and evil, unwelcome alike to giver and receiver, and if not unwelcome, more's the pity! Every dependent is an unnecessary and an expensive burden to the community. It needs only one observation to show how intimately united logically and by the most absolute necessity is the work of charity-organization with that of medicine. There is hardly a dependent whose dependency does not spring from or is not related to physical or mental abnormalism. What is the physician's designation of such abnormalism? Plainly the simple word, disease. The dependent is the patient, curable or not, of society, and he is also the patient of the physician.

There are two classes of such patients: those directly the result of disease or defect, and those indirectly or partially so. In the first class we have the insane, the idiotic, the crippled, the blind, the deaf-mute, the senile, the sick poor, the epileptic. In the second class we have the orphan, the criminal, the pauper, the alcoholic, the beggar, and the tramp.

The fundamental principles of the treatment of dependency by the charity-organization societies are: 1. The personal relation; no patent-medicine cure, or therapeutics by the wholesale. 2. The permanent cure, when it is possible, by proper and thorough means, not the perpetuation and increase of the disease by doles and homeopathic *similia*. 3. The prevention of the disease in future by individual health and vitality. Surely no principles could be more strictly medical. Every physician must heartily assent to them and seek to apply them. It is my chief object now to suggest that the methods advocated by these societies are genuinely medical, and that in dealing with these patients from the strictly professional standpoint, we as physicians have at hand a powerful therapeutic means spontaneously offered to us. Ours also are the duties of cure and of prevention. As ordinary citizens and members of society we must each become members of the charity-organization societies, and as physicians we should use this method of therapeutics just as we do hospitals, climate, nurses, food, and sanitation.

In some respects it seems a great pity that as a profession we have allowed the beneficent exotic of charity-organization to grow almost wholly out of lay ground and not in the sacred soil of medicine. Having done so, however, it is the more our duty to nourish it all in our power and to help to disseminate its blessed fruitage. It is gratifying to learn that physicians are coming to recognize what possibilities of good lie in the movement, and how they are utilizing and guiding it toward splendid results. We may with absolute truth urge that with our professional help the ideal will find a speedier, a more solid, and a more lasting realization than without. It is for the welfare of the movement that its leaders seek to interest *us* and elicit our sincere and powerful coöperation. We indeed rest all our treatment upon the personal and single consideration; we must as therapeutists individualize our cases; we also aim to cure, not relieve, and in relieving perpetuate the disease; we too believe above all things in prevention.

Applying these principles to the second class of our dependents we find a multifold variety of duties and methods at once springing into view. Even as to mendicancy we have an especial professional function. Begging is a crime against the law. Let us help to put the law in action. The self-exposure of the crippled and blind, the shams of the pencil-peddler, the parading of suffering to elicit alms—such things should be stopped. They are usually masked under the excusing guise of physical infirmity. If real suffering exist, ten to one it is deserved, and even if so, there is a proper mechanism of relief and cure, which we as physicians can make operative. It is better to hire such people to be warm than to be cold, to do something useful than to do something hideously useless. There is a place and a possible useful occupation for every tramp and every beggar. Most of them do not want to have their infirmity healed. Ours is the duty of unmasking at least the physical fraud.

And we also know as few others the influence of idleness in the production of pauperism and disease. The physiologic inaction of the occupants of our poorhouses and asylums is a prolific breeder of disease and preventive of cure. Let us help to do away with this foul shame. Our descendants will wonder at our heathenish cruelty and shortsightedness when they read that we house our insane, epileptics, paupers, and even our criminals in forced idleness at an enormous expense to the thrifty producer, and with multiplication of physical and mental evils.

Much of our institutional life is a practical reward for and promoter of laziness, a destroyer of the safeguards of health. The charity-driblets and free-soup

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whose practice lies among the poorer classes are, year by year, more severely hampered in making a livelihood.

7. There is keen and continuous competition between hospitals which spend, year by year, sums considerably larger than their average income would justify, and are thus driven to resort to all manner of contrivances to meet their liabilities.

8. Year by year, also, new hospitals are (sometimes under very doubtful auspices) established for the treatment of special diseases, without any reference to the provision already available.

9. The hospitals and dispensaries are often ill-grouped for local purposes, and though sometimes a hospital and one or more dispensaries are, from their position, conveniently placed for co-operation, there is no settled relation or agreement between them by which cases may be transferred from dispensary to hospital, and *vice versa*.

10. There is no uniform system of keeping and publishing accounts.

philosophy of life is despicable. Rather than cheap and free food we should teach the poor the proper choice, the proper cookery, and the proper use of food. Any American family wastes more food than would keep a French family of the same social status, but it will be a long time before our people listen to Mr. Edward Atkinson's advice in these respects. A few years ago my friend, Mr. Bond, of Cambridge, England, took charge of the poor-law administration of the city. By the methods of charity-organization he has already reduced the municipal annual expense of this item from about $40,000 to $15,000 with great coincident improvement in the condition of the deserving poor. There are some 218,000 out-door senile paupers in England, and yet in twenty years the mere fall in the prices of food, etc., would have enabled every one of them to have insured himself against pauperism had he but saved his excess and from 1874 applied it in the way of insurance-premiums. In Buffalo, N. Y., a comparison of twelve years with out-door relief with twelve years without out-door relief showed a saving of $700,000—and also a saving of in-door relief of over $400,000—in all over a million dollars, and a less number of paupers to-day than fifteen years ago.

As to the criminal, it is yet an open question how far his condition is a result, direct or indirect, of congenital or acquired disease. The relation at least needs to be carefully studied by medical men. But that the criminal should be an expense to the law-abiding thrifty is outrageous.

But it is to the prevention of pauperism that we should look most sharply. Let us see, for example, if we cannot avoid the evils of the English system in its treatment of destitute children, who are crushed together in orphan-asylums and "barrack schools," from 200 to 1400 in each. This costs the producer $150 a head, almost one-half going for officers' salaries.

If we turn to classes of dependents whose conditions result almost directly and wholly from disease we are struck by the magnitude of the task and the multiplicity of methods of cure. It is not my purpose, because of lack both of ability and of time, to review the etiology and suggest the treatment of the evils of insanity, of epilepsy, of idiocy, and the like. It is only by the coöperation of a thousand minds working through many years that we shall reach any satisfactory solution. I desire only to ask the question, Shall we as physicians, and especially shall the American Academy of Medicine, undertake to help in the great work?

As to the hopeless idiot, the impossibility of cure, and the impossibility of reaching the ultimate causes of the production of this class of cases, have led some to the question we all shrink from asking. And yet, despite the dangers, there are those who see no really valid argument against the many valid ones for a legalized, public, beneficent sentence of painless death upon him. We each silently vote the sentence in our silent prayer that if we should become hopelessly idiotic we would not wish to be allowed to live.

The blind, the needlessly blind, are the ghosts in the empty chairs at every ophthalmologic banquet. We are glad that best efforts are being made toward the chief reform. Alas! that we cannot pay the lobbies to get a little law passed to prevent much of the world's blindness. Politics has reached such a state of degradation that a definite sum of "blood-money" seems often required to secure the most cryingly-needed legislation.

The crippled, the chronically diseased, the deaf-mute, the prematurely senile, etc., all have the most vital relations with medicine. We can do much to cure and to alleviate, and all may be made self-supporting, and certainly made more happy, by self-help and self-dependence.

Perhaps of all diseased people the epileptic demands our greatest compassion, and it is precisely he that reacts most wonderfully to our treatment. It is again sadly strange that the best treatment has been devised by the non-medical. Our failure to cure by drugs or by the trephine should have stimulated us to increased effort instead of shamed us into inaction. Intellectual and sensitive, otherwise able-minded and able-bodied, the epileptic is thrown out of work and out of ordinary social life by his mysterious malady. It is gratifying to know that the colony-plan has at last found a footing in England and in America, but it is horrifying to know that there are to-day thousands of these shunned and shunning, suffering souls deprived of the happiness that might so easily be theirs.[1] There is probably nothing in the world that is such an inspiriting example of beneficent blessedness as the Bielefeld Epileptic Colony in Germany or the Magull Home near Liverpool, England. Most if not all of you know well enough about these places, and I need not weary you with details. If not, read the account in the *Charity-Organization Manual*. At Bielefeld in 1891 there were treated 1277 patients, if patients they may be called in this beautiful home-like place, at once most hospitable, but most *unhospital-like*. The colony is largely self-supporting. At the Magull Home, a relatively small institution, but perhaps all the better for that, the "home-treatment" with no bromids, or very little, is remarkably successful. "In fourteen of those who passed through the house during the year, the fits had been arrested at the end of the year." "In the case of twenty-two patients the fits in the first half of their stay during the year numbered 1673, but in the second half, 948, a decrease of 725." Dr. Alexander believes that such homes may be made entirely self-supporting. There is no idleness. Idleness, as Dr. Ferrier says, "increases the instability of the nervous system." The chief and necessary therapeutic measures are country-life, home-life, employment, congenial surroundings, good nourishment, and little or no bromid.

I had a number of notes and gathered data of interest as to crippled children and as to feeble-minded children and girls, and what may be done for them; but I must pass the subjects by.

Another reproach of medicine, and especially of psychology, is insanity. To this I can also make but passing reference. A prominent neurologist has lately passed severe criticism upon his brother-specialists as regards the treatment of insanity. That many of the criticisms are just, few even of those "touched" would deny. But few would also deny that in many respects the charges

[1] In Germany the number of epileptics is about one per thousand of the population. Dr. Peterson puts the number of epileptics in New York State alone at double this number, or about 1200. This would gives us in the United States about 130,000, an infinitesimal portion of which only has proper care.

were often greatly exaggerated, and that many qualifying or contradicting facts were left out of the count. Such, for example, were the unmentioned facts that in the city wherein he spoke the criticised "banishment of the white caps from the wards" had been of profound good, and that the desired abrogation of locks and bolts was also exemplified. Yet another is the fact that there are nineteen training-schools in the United States for the special training of nurses for the insane. But whatever has been done, there remain herculean tasks yet to do. What a shame it is that many thousands of overactive, unstrung nervous systems are in idleness consuming body and mind, hopelessly and expensively, when the burden to the taxpayer, to the physician, and to the sufferer might be greatly lightened or entirely taken off by colonization, employment, and individualization.

And thus we ever return to the same repeated lesson, whatever the kind of dependency we study. The Charity-Organization Society has found a remedy for much, if not all the evils. It remains for us to aid, to utilize, and to realize the clearly realizable ideal.

It corresponds, for example, with the American character to do things in a large and lavish way, and we have the awful and growing evils of institutionalism. A dangerous habit is also exaggerating and deepening the evil: I refer to the voting of the taxpayer's money to private institutions. In New York State nearly $3,000,000 a year are thus given to private institutions for orphan children and the friendless. For charities and correctional purposes the State of Pennsylvania gives to private institutions about one-third of all amounts thus spent. In a series of years this amounted to about $12,000,000. What a wretched and criminal blunder! In politics, as well as in sociology, we need to learn the lessons of other countries and of other methods. We have yet to perceive all the *reductio ad absurdum*, all the ironical truth of the pertinent question, *Quis custodiet ipsos custodes?* Mechanically-working, military-governed, outwardly-splendid, non-curative prison-palaces are not the proper or lasting solutions of the problems of dependency. Charity-organization says we must individualize our cases and get into personal relations with our dependents; and charity-organization is right. It says we must seek to cure, not simply to endure them; that we must give them interesting employment; that we must reward sanity and self-help, not encourage the weak to throw away self-respect; that we must get our dependents into the country and into an approximation to home-life, etc. And in all this charity-organization is right, and the way of the world is wrong. Let us adopt and carry into practice the better therapeutic methods!

MEDICAL PROGRESS.

Sudden Death from the Use of the Bicycle.—PETIT (*l'Abeille Médicale*, September 10, 1894) has observed three cases of sudden death following the use of the bicycle by subjects affected with disease of the heart. The first case was in a man sixty years of age, who, though apparently robust, was affected with cardiac disease. He was aware of his condition, but fearing that his physician would not permit him to use the bicycle he had not consulted him in regard to the matter. The second case was in a man forty-eight years of age, who had recently recovered from an attack of typhoid fever. He was a stout man, and in the hope of removing some of his superfluous flesh had begun the use of the bicycle. The fever had probably resulted in a fatty degeneration of the heart-muscle, and the organ was overtasked in the effort of riding. The third patient was a man about forty years of age. Petit concludes that diseases of the heart and old age constitute contraindications to the use of the bicycle.

The Sterilization of Catgut by Heat.—SCHÜLLER (*Sonderabdruck aus der Aerztliche Praktiker*, 1894, No. 30) has found after numerous experiments that catgut immersed in oil of lavender and exposed in hermetically sealed glass vessels to a temperature of 110° C. for half an hour in a steam sterilizer is rendered sterile and available for surgical purposes. Good, dry catgut in loose, small rings is placed in a suitable glass vessel with a large opening and covered with oil of lavender, care being taken that the glass cover is in contact with the surface of the oil, but not with the catgut. It is essential that the vessel be hermetically sealed. Catgut thus treated is rendered mobile and retains its strength. Before being used it may be removed with sterilized forceps and immediately employed, or it may be placed for a short time in sterilized water or in an aqueous solution of carbolic acid. The same oil may be used repeatedly, or the process of sterilization may be repeated without danger to the catgut. Care must be taken that the oil of lavender is pure and uncontaminated, and the vessels used, as well as the catgut, perfectly dry. Both clinical experience and bacteriologic investigation have demonstrated the sterility of catgut treated according to the method detailed.

THERAPEUTIC NOTE.

Treatment of the Vulvitis of Little Girls.—In the *Revue Obstétricale et Gynécologique*, September, 1894, the treatment of the vulvo-vaginitis of children is summarized as follows: During the first stage, when the parts are inflamed and swollen, they should be bathed with starchy and emollient lotions, and covered with compresses saturated with a boric solution 1 : 100, a sublimate solution 1 : 10,000, or carbolic-acid solution 1 : 100. The active inflammation being arrested, the parts should be well dried with absorbent cotton, and dusted with a powder of iodoform, 4 grams; tannin, 1 gram, and bismuth subnitrate 6 grams; the labia should be kept separated by a pledget of absorbent cotton. When the inflammation extends into the vagina, about 30 grams of the following mixture should be injected: Glycerin, 100 grams, alum and cocain hydrochlorate, each 1 gram. The injection must be repeated after each act of micturition, and must be followed by the iodoform-insufflation. If desired, the injection may be replaced by the introduction of a small vaginal suppository made from the following, divided into fifteen small filiform bougies having a diameter not exceeding 5 millimeters: Iodoform, 8 grams; gum tragacanth and cocoa-butter, each 10 grams. Finally, the general treatment is of the greatest importance. The children should be built up, and sent to the country or seashore. Cod-liver oil, iron iodid, and the phosphates are especially indicated.

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OLIVER WENDELL HOLMES.

To say that in DR. HOLMES America has lost her greatest physician is not one of the exaggerations to which men are prompted in expressing their grief over a recent death. We have not in mind only his contributions to medical science and literature, which, although overshadowed by his work in general letters, were many and important, but we are thinking of that wider province of the physician that lies beyond the laboratory and the drug-shop, the hospital and the consulting-room.

We doubt whether in the long period of DR. HOLMES' activity any other English writer has done so much for the health of the minds of his readers; and his readers embraced all classes. Rich and poor, old and young, learned and unlearned, found in his pages something that they could understand, and the understanding of which bettered them mentally and morally. And this highest praise that a writer can have, namely, that the best-equipped readers found the most profit and entertainment in his writings, is universally conceded to HOLMES. As the "Autocrat" he will probably be best known to fame, for like all strong and sincere natures he impressed his personality ineffaceably upon the minds brought into contact with his thought, and hundreds of thousands who have never seen him have nevertheless felt the charm of his presence.

We were about to say that his was a simple nature; and the statement would have been true in the one sense that the meretricious in literature or in life repelled him; but his intellect was subtle and complex as civilization. Science, art, nature, philosophy were all his, and all left their impress upon him. Cosmopolitan sympathy and experience modified and were modified by the effects of Puritan ancestry and old-time New England training. In his complex make-up there is no doubt that his medical studies and teaching exerted a dominant influence. In the felicitous poem read by DR. WEIR MITCHELL to the College of Physicians of Philadelphia on the occasion of the presentation to that body of a portrait of HOLMES, Minerva and Apollo are represented as contending for, and at last agreeing to divide, the lad. But, unless we concede that medicine as well as poetry belongs to Apollo, we must hold Minerva to have obtained the "biggest half" in the division.

Much of HOLMES' poetry, and nearly all of his prose, bear internal evidence of the scientific training, acumen, and observation of the author. He himself characterized "Elsie Venner" as a "medicated novel."

Although men like HOLMES are rare, yet it is a great error to think that devotion to medicine is incompatible with wide culture and even with the exercise of considerable activity in general literature. There is no need to cite examples either among the living or the dead, for such must readily suggest themselves to all our readers. The broader the man, the greater his range of knowledge, the more extended his observation, the deeper his sympathies, the better physician he will be. HELMHOLTZ in science, HOLMES in letters, broadened, it is true, out of medicine; yet it was from medicine that they broadened out; and men content to remain within the boundaries of the profession, devoting their chiefest energies to its enlargement, can learn much from the example of these illustrious graduates into larger worlds. Whether it be in diagnosis or in treatment, in criticism of new methods or in just estimate of old ones, in intercourse with patients or with students, a knowledge of men, of letters and of things beyond medicine betters judgment and strengthens influence. It is particularly in intercourse with the community as a whole that the

cultured physician can do the greatest good. His recommendation in matters of public health is more potent, and his influence in favor of public morality is more enduring. He meets as an equal the leaders in all departments of human thought and endeavor, and, commanding their respect, elevates the standing of his most obscure brother.

DR. HOLMES never lost sight of his profession, and never allowed the world to lose sight of it. Throughout his writings, from "The Fly in the Stethoscope" to the good-natured raillery at a too-exclusive specialism in "Over the Tea-cups," he did not hesitate to hit at its weaknesses and foibles; while, apart from the admirable characters in his novels, he has in many noble passages pictured the life and influence of the true, modest, self-sacrificing doctor in terms of the highest appreciation.

President ELIOT, of Harvard College, speaking of DR. HOLMES, said:

His connection with Harvard was through the medical school. He never taught literature or gave any lectures on literature. He taught at the Harvard Medical School for thirty-five years, where he was Professor of Anatomy and Physiology, teaching also histology and microscopy. He began when the Harvard Medical School was not of much account, but lived and worked in it long enough to see it become important. He taught the above branches until 1871, when he became Professor of Anatomy alone, which he continued to teach until 1882. In those busy days, when he lectured in so many branches, he used to say that he occupied not a "chair," but a "settee" of medicine in the Harvard Medical School.

DR. HOLMES was a hard and faithful worker, and one of the brightest men who ever lectured at the medical school. He did a great deal to make the school what it has become. He lectured regularly five times a week throughout the school year, and never failed to be on hand. He was the most careful of men in the preparation of his lectures, and very painstaking in his experiments. He was very exact in dissection.

DR. HOLMES' greatest contribution to the world's medical knowledge was the discovery of the fact that puerperal fever is contagious. He contended so for years, and met with all sorts of ridicule. It is now, of course, an axiom of medical knowledge. I once heard DR. OSLER, of Baltimore, say that this is one of the greatest contributions that a New England physician ever made to medical science.

One of the most medical and most characteristic features of DR. HOLMES' writings was their frank fearlessness. The verses attributed to the "Young Astronomer" aptly describe their author—

"I dare not be a coward with my lips,
Who dare to question all things in my soul;
. . . . . .
My life shall be a challenge, not a truce!"

True, warfare is the last image one would dream of associating with the genial, kindly spirit that so calmly took leave of earth. But though his weapons were satire and jest, they were none the less effective and none the less earnestly used against shams and delusions of all kinds; while at times, as in "Old Ironsides," he could be vigorously eloquent. Yet kindliness is the prevailing note, and if one could imagine DR. HOLMES sending to those he delighted to call his "Beloved" a last greeting, it would be in the closing lines of the "Autocrat": "I hope you all love me none the less for anything I have told you. Farewell."

THE SHORTLIDGE CASE.

THIS now notorious case furnishes an instance of trial by public opinion. It had long been a foregone conclusion that the assassin of his wife would be acquitted on the ground of insanity. The people were prepared for, or rather *had* prepared, the verdict. This verdict was in accord not only with their opinions, but with their prejudices, their knowledge, and their conscience. They had determined that a middle-aged man, of respectable antecedents, a teacher of the young, a father of a large family, must have been insane when he shot down on a public highway his bride of six weeks. The case was tried, and judgment given by the community on the day of the tragedy. Nothing remained for the court but to register the public decree as spoken by the jury. No hideous romance of the Eugene-Aram type would be repeated in this case; the staid people of Delaware County had no relish for such romances. They form a community in which murder can be tolerated better than capital punishment. They believe in the defence of insanity, especially when invoked to shelter a respectable pedagogue in their own midst. They proclaimed loudly their belief to some purpose.

We note in this case the exercise of the prerogative of the Anglo-Saxon jury. This body refuses to be bound by rote, or by formula, or even by evidence. Its genius is constructive, not merely mechanical. The jury decrees, not merely registers, a verdict. It makes justice, not merely cyphers it out. It arrogates to itself a divine function: it is the voice of the people, hence the voice of GOD. It may go back of the spoken evidence, and, by an insight given to no individual, it may judge of the heart of the matter by a sort of divine intuition. It stands

often for justice, but sometimes for the right to do as it pleases and as pleases the public. It is at once the best and the worst, the most ancient and the most antiquated institution of a people who value freedom in law as well as in thought.

The jury in the SHORTLIDGE case exemplified all this. It would have been useless to have offered to it a great array of expert witnesses for the prosecution. By a transcendentalism of justice it was above all this. A divine reason and compassion actuated it. It took this wretched man to itself, and would have shielded him from the cruel scrutiny of a rigorous and exacting science.

In criminal annals the case will rank with those of MERCER and NUTT, who were innocent because the public would have it so. It will be in eternal contrast with that of GUITEAU, and that especially of PRENDERGAST, both of whom were more insane than SHORTLIDGE, but whose crimes outraged the public sense.

From the standpoint of scientific criticism we think that the prosecution too willingly made no attempt to show the presence of motive, and that the defence failed to show the presence of any well-recognized form of insanity. A whole flood of light, it has been hinted, could have been cast upon the question of motive; and whether or not this could have been made available for the jury, the fact remains that the darkest mysteries of this appalling case were not nearly exploited on the trial; were not, in fact, even approached or hinted at.

As to the form of insanity from which SHORTLIDGE was alleged to have suffered, the contention was that it was the form of agitated melancholia. It may be conceded that this form of insanity does occasionally furnish episodes of extreme frenzy, in which the patient quite loses his self-control and even his consciousness. But apart from the fact that these crises are rare, they are never *isolated*, *i. e.*, cut off from all other stigmata of melancholia; and, more important still, they are never *initiatory*, *i. e.*, the primary phenomena of melancholic seizures. They are, on the contrary, *intercurrent*, and well set, as it were, in the surroundings of typical melancholic symptoms. In the SHORTLIDGE case there was no adequate attempt made to prove the existence of precedent melancholic phenomena. Apart from the evidence of a few household servants that the man had been slightly ill for a few days or weeks, nothing pertinent to this alleged melancholia was brought out. The prosecuting attorney apparently felt so sure of losing his case, or was so badly advised, that he took no advantage of this weak line of defence; while the attorneys for the defence were apparently so confident of winning their case that they did not deem it worth while to make their contention scientifically plausible. There were, indeed, some hints at "grip" and at drug-intoxication, but these factors practically were dismissed as innocuous.

But, again, these episodes of *melancholia agitata* are the expression of a profound psychalgia; they lead logically to suicide—not to homicide. It is proverbial that the melancholiac is *not* a dangerous lunatic to anyone but himself. Instances, doubtless, are on record of assaults made by melancholy patients; but even by this loophole the defence did not find it necessary to escape. The contention for the existence of an episode in SHORTLIDGE'S case cannot reasonably stand on the evidence. The history before and after the crime does not support it. If it is to be allowed, then we shall have a new defence in medical jurisprudence. Let us call it, provisionally, "homicidal impulsive melancholia!"

We maintain, in brief, that the trial in this case shed no light upon its hidden mysteries; that it contributed nothing to the science of medical jurisprudence; and that it showed once more that juries are the mouthpieces of public opinion. The life of this unhappy man was, unfortunately, not the only one at issue, for there was at stake, in a sense, the life of every criminal lunatic which in the future will be sacrificed to public clamor as easily as his was saved. Shall we speak henceforth of the Moloch of public opinion? It is not a Moloch, but a stuffed prophet, who delivers himself of judgments.

Meanwhile, as the pathetic district-attorney said in court, "the dead woman sleeps in mother earth."

Finally, the case of the prosecution was prejudiced hopelessly by the mistaken zeal of the victim's friends. These mourners are entitled to the sympathy of all people, for their grief is a sore one; but they should have remembered that the object of the law is justice, not revenge.

EDITORIAL COMMENTS.

The Reliability of the Newspaper-Reports as to Foot-ball Casualties.—A valued correspondent, for whose opinion we have all respect, avers that the newspaper-reports of foot-ball casualties are grossly exaggerated, and says that of his personal knowledge three of the injuries

alluded to in the last issue of THE NEWS never occurred. We gladly accept the correction, and wish that every case of accident that has been reported were a newspaper-lie. We have no wish except for the truth and that the game might be purged of brutality and danger, and that it may be made properly subordinate to intellectual training. Curiously enough, on the same day that our critic wrote, an equally veracious and well-informed gentleman, a college athlete in fact, told us that to his personal knowledge one member of the foot-ball team of an Eastern college received his tuition free and $1000 a year salary until the four-year limit barred him. His scholarship was not good enough to permit his graduation at the end of four years.

Curiously enough, also, by the same mail that brought our critic's letter, the most trustworthy newspapers we can get brought reports of one death on the ball-field in England, and the following, not all of the casualties in the games of one day, October 7th, in the United States:

"It was noticed yesterday that the precaution had been taken of having several doctors, with liberal supplies of court-plaster, arnica, splints, etc., on hand. Several players were disabled, but none seriously so. Wardner, of the Crescents, was the only one who had to retire from the contest. The game had not been in progress five minutes before it had taken a sanguinary turn. There were half-a-dozen bruised noses and bleeding mouths. Most of the rough play was in the scrimmages. The Crescent players were unnecessarily rough, and in one or two instances were guilty of flagrant slugging."

"Cornell defeated Union College at Ithaca yesterday by a score of 39 to 0. The Union men slugged fiercely, eight Cornellians being injured."

"In the Harvard-Andover game yesterday Gray, of Harvard, broke his leg just above the ankle. This is the second time he has met with this accident while playing. Connor broke his collar-bone and will not play any more this season. Brewer has a bad ankle and is on crutches."

We sincerely trust these will also be proved false reports. It is certainly not to the self-interest of the newspapers to make foot-ball unpopular by exaggerating the reports of accidents or by any other means, and it is strange that they should make such mistakes. We had always supposed that but a fraction of the number of accidents actually happening get into the newspapers. There are many reasons why both their severity and their number should be minimized by the players, by the newspapers, and especially by the college-authorities and athletic associations.

The Harmonizing Influence of the Local Medical Society.—The power of the local medical society for good cannot be better exemplified than by the success of the Cleveland Medical Society. Organized not two years ago, the Society has already a large membership-list, and is actively engaged in a movement to form a library and to secure a permanent home worthy of the dignity and importance of the organization. At the last quarterly meeting of the Society, held September 28, 1894, Dr. W. W. Keen addressed the Society on the subject of "Amputation of the Breast." On the following morning Dr. Keen held a clinic in the Cleveland General Hospital in the presence of a large assemblage, illustrating his remarks of the evening before. The Society has on previous occasions been addressed by Dr. Wm. Pepper and Dr. Howard A. Kelly. By these means the Cleveland profession has been brought into harmonious union; and what has been accomplished in Cleveland can be accomplished elsewhere, the good work extending from town to city, to county, to State, and finally to the American Medical Association. A united and harmonious medical profession means higher medical education and intelligent medical legislation.

Philadelphia as a Medical Center.—If we may trust the newspaper-statistician the following is the number of students pursuing courses of medical study in Philadelphia:

Medical Schools.	
University of Pennsylvania	875
Jefferson	700
Hahnemann	325
Medico-Chirurgical	300
Woman's	200
	2400
Special and advanced students, not counted	100
Dental Schools	600
Veterinary	100
Total	3200

There seems a somewhat suspicious tendency to large, round numbers in these figures, but we suppose they are not all too "gross exaggerations." Indeed, we might suggest that the noble array of nurses should not have been omitted. In any event, it is a huge number, and a great increase over previous years. One wonders if this greater interest in medicine may be accounted for by a keen sense on the part of these young folk of coming duties and opening possibilities aroused by foot-ball evolution and the attendant work to be thrust upon the profession! Even the dentists will have additional work at the present rate of progress, and the veterinarians may also hope for much practice from those who ride a hobby over-hard!

Tubercle-Bacilli in Butter.—The frequent occurrence of the tubercle-bacillus in milk has naturally led to the question as to its occurrence in milk-products, especially butter and cheese. The identification of it in these is somewhat difficult, and few observers have interested themselves in the investigation. In a recent number of the *Correspondenzblatt für Schweizer Aerzte*, O. ROTH, of Zürich, reports some tests of commercial butter, and discusses the question at some length. He examined twenty samples, in two of which he found virulent tubercle-bacilli. He refers to an investigation by Brusaferro, who found one sample containing tubercle-bacilli out of a total of nine examined—about the same proportion as that obtained by Roth. Roth finds that boiling cream interferes seriously with the yield of butter, but thinks that it will be feasible to use prolonged heating below the boiling-point. The proper remedy, however, is such control of the dairy as will eliminate all tuberculous cattle.

Medical Statistics of the Japanese Navy.—In view of the attention which the Korean war has drawn to the

Japanese, it may be of interest to summarize some of the facts given in a recent sanitary report of the Japanese Navy. The report is in English. It relates to the year 1892 and emanates from Yasusumi Saneyoshi, F.R.C.S. Eng., Director-General. The influence of modern preventive medicine is apparently exhibited vividly by a table showing the number of cases of kak'ke (beri-beri) annually since 1878. In that year the number amounted to nearly one-third the force, and was even higher some years later. In 1884 the proportion fell to a little over one-tenth the force, and the next year it dropped to about 0.6 per cent., and since then it has been insignificant. In 1892 only three cases were reported from a total of nearly ten thousand men. These cases were all from a prison, and are stated to have been caused by deficiency of food combined with overwork.

Data on Keeleyism.—Rev. Dr. J. M. Buckley, editor of the *Christian Advocate*, of New York (150 Fifth Avenue, New York City) solicits specific data in reference to "Keeley Institutes." He asks only for information from physicians and ministers, and desires to make a thorough and impartial investigation of the Keeley business.

Dr. Buckley is an able journalist and editor. He was a student of medicine for three years, and has visited nearly every institution for the insane in the United States, and was sent to Europe by the Governor of New Hampshire to examine the institutions of Great Britain.

He is a D.D. and an LL.D., and has written extensively upon psychologic subjects, as well as upon sociologic, anthropologic and theologic problems. He has published a work upon *Faith Healing*, *Christian Science and Kindred Phenomena.*

State Board of Medical Examiners.—An autumn examination will be held by the Pennsylvania Board. Its influence is already clearly felt in the solicitude shown by some of the medical schools concerning the fitness of students to pursue the study of medicine. It was rare in former years to hear the dean of a medical school advise a pupil not to enter or continue in the course unless indeed the student had paid all the fees that the college could exact. We hear now, however, occasionally of students being advised that they are not sufficiently prepared to enter upon the medical course. It is to be hoped that the Pennsylvania Board will maintain the position that was assumed in the first examination. The questions were highly satisfactory. They were such as any well-educated graduate could answer, and if perfect impartiality, fairness, and strictness are maintained the effect upon the colleges and upon the profession will be most beneficial.

SELECTION.

HUMORS OF HOMEOPATHY.

Richard Bentley, the famous scholar who had as much experience of controversy as any man that ever lived, used to say that no man was ever written down except by himself. We commend this maxim to the attention of the disciples of Hahnemann. These guileless persons often complain that they are evil-entreated by the professors of scientific medicine, their doctrines being misrepresented and their practice unjustly ridiculed. But are not their worst enemies those of their own household? Take the following samples of their teaching as set forth in all seriousness in their own organ. The *American Homeopathist* gravely assures all whom it may concern that if a patient sleeps with his knees apart chamomilla is indicated; if with his legs stretched out at full length, pulsatilla; if with one leg drawn up and the other stretched out, stannum. If the patient has his head always turned to one side, cina is indicated; if he bends his head forward, staphysagria; if backward, hyoscyamus. So much for the head and the legs. The hands and arms are the object of still more mysterious refinements. If the patient lie with his hands on his abdomen, pulsatilla is indicated; the same drug is to be used when a woman sleeps with her hands over her head, but when a man does so, he requires nux. There is something suspicious in this difference in which we fear the "New Woman" will see a fresh instance of the denial of equal privilege with the tyrant man. We confess ourselves utterly unable to appreciate the clinical significance of the phenomena that have been enumerated; it would almost seem as if the prophets of the pilular philosophy believed man to be under a curse like that of Ernulphus, and that he is banned in all his limbs—in sleeping, in sitting, in lying, etc. There is one position of the hands which, strangely enough, is not provided for; the resources of homeopathic therapeutics seem to fail before the contingency of a patient who, like the vulgar little boy of the *Ingoldsby Legends*, should "put his thumb unto his nose and spread his fingers out." This omission is the more remarkable since the homeopathic practitioner would seem to be prepared for even less decorous manifestations on the part of his patients. Thus we are told that "if a patient 'cusses' you, spits in your face, and pulls your whiskers," you are to soothe her excited feelings with chamomilla. There is a refreshing candor about the following: "If a patient gets suddenly better, it is a bad sign"—for the doctor, we presume. The *North American Journal of Homeopathy* published recently an article on "Some Peculiar Sweats," in which also the subtleties of homeopathic therapeutics are strikingly displayed. Thus we are told that if only the upper half of the body sweats, nux vomica or opium is the thing; if the lower, crocus cyclamen; if the back, ananita or phosphorus; if the right side, aurum or sodium; if the left, fluoric acid and jaborandi; if the face alone, ignatia. Lastly, if the patient sweats "in spots" the sovran'st thing for this distressing condition is tellurium. For sweats in the morning, angostura (to the profane mind more suggestive of dinner-time) is prescribed; for sweats while eating you have a specific in "oleum animalis;" we can only hope that this drug agrees with those to whom it is administered better than the component elements do with each other. It is interesting to learn that if the sweat smells like horse's urine its natural fragrance may be restored by nitric acid. Then in the *Southern Journal of Homeopathy* we find some curious information about "Peculiar Coughs." Thus, when the cough comes on at the inconvenient hour of 6 A.M., you must put your trust in cedron; if it is worse when the patient lies on his belly give him baryta; if it is worse when lying on the left side, mercurius. We are unkindly left in the

dark as to what is to be done if the cough is worse when the patient lies on his right side or on his back. When the cough is aggravated by music creosote is indicated. We are thankful for this suggestion, but it is disappointing that no information is vouchsafed as to how we are to deal with those other common exciting causes of cough—a dull sermon or a drowsy lecture. We could add indefinitely to this *florilegium*, but this would hardly lead to edification. It would be gross flattery to call this stuff heresy or even superstition; it is sheer unadulterated nonsense. It is the homeopaths themselves who write themselves down—what poor Dogberry was so anxious to be written down. Certainly the most malicious "allopath" could not invent anything that tends to laughter more than these simple gentlemen invent on themselves.—*British Medical Journal.*

SOCIETY PROCEEDINGS.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Abstract of the Proceedings of the Seventh Annual Meeting, held in Toronto, Ontario, September 19, 20, and 21, 1894.

(Continued from page 390.)

Second Day—Afternoon Session.

Dr. C. C. Frederick, of Buffalo, read a paper on "The Relations of Renal Insufficiency to Surgical Operations." The author reported observations based on nearly three hundred operations at the Buffalo Woman's Hospital, supplemented by the experience of several prominent operators. By renal insufficiency is meant any condition of the urine which shows deficient elimination of waste products, whether from functional inactivity or from disease of the kidneys. Whether renal insufficiency is a contra-indication to operation depends on the consideration of three factors: 1. The amount and nature of the insufficiency; 2. The character of the lesions for which operation is proposed; 3. The causal relation which the patient's disease holds to the renal insufficiency. Every patient's urine before operation should be collected for twenty-four hours, except when operation is urgent, as for example, in ruptured ectopic pregnancy. In examination of urine the important fact to ascertain is whether the kidneys are crippled or in full or nearly normal functional activity. Women with chronic endometritis are especially liable to functional insufficiency. Most gynecologic patients who are run down physically present the same condition. A knowledge of the state of the patient's kidneys is of value to the operator and anesthetizer. Renal insufficiency renders the patient more liable to shock from operation and is followed by a slower convalescence.

Dr. I. S. Stone, of Washington, D. C., followed with a paper entitled "Some Results of Ether-Anesthesia in Abdominal Operations."

Dr. Eugene Boise, of Grand Rapids, Michigan, read a paper on "The Cause of Thirst Following Abdominal Section." The author, after stating the generally accepted proposition that thirst is a sensation indicating that the tissues of the body are in want of more water, argues that the sensation as felt in the mouth and throat is reflex, and that the real point from which the sensation arises is in the abdominal viscera; that from these the sensation is conveyed to the consciousness by fibers of the sympathetic system of nerves; that while ordinary thirst is caused by the withdrawal of water from the tissues to refill the veins depleted by excessive perspiration or otherwise, the thirst following abdominal section is caused by the withdrawal of water from the abdominal viscera to fill veins partially collapsed by reason of diminished blood-supply because of contraction of the arteries of the viscera. He briefly stated those physiologic facts which are universally accepted, or have been experimentally proved, on which the theory is based: (1) Thirst is a sensation indicating that the tissues need more water. (2) The sensation felt in the throat is reflex. (3) The origin of the sensation is believed by leading physiologists to lie in the sympathetic system of nerves, because (*a*) no cerebro-spinal nerves can be found which convey the sensation to the consciousness, and (*b*) nutrition is presided over by the sympathetic system, and thirst is a disturbance of nutrition. (4) The origin of the sensation is probably from the abdominal organs because (*a*) these are so rich in sympathetic fibers, and (*b*) introduction of water into the stomach so instantaneously allays thirst. (5) The sensation invariably follows the withdrawal of any considerable amount of fluid from the body; the withdrawal of such fluid causes proportionate collapse of veins and capillaries. (6) Capillaries tend to remain at normal tension, and when suddedly collapsed in any degree attempt to regain that tension by taking water from the surrounding tissues. (7) Irritation of sympathetic nerves causes contraction of the arterioles supplied by such nerves. (8) Sudden contraction of the arterioles supplying any organ is followed by lessened tension in the capillaries and small veins of that organ. (9) Abdominal section invariably causes direct and reflex irritation of the abdominal sympathetic nerves. (10) Such irritation causes contraction in some degree of the arterioles of the abdominal viscera, with consequent lessened tension in their capillaries, and compensatory withdrawal of water from their tissues. And is it not probable that such circulatory disturbances give rise to the sensation of thirst?

Dr. Hulbert, Second Vice-President, took the chair, and President Rohé delivered his Address. He selected for his subject "Intestinal Obstruction Following Operations in which the Peritoneal Cavity is Opened." He said obstruction of the bowels causes between 1 and 2 per cent. of the deaths following ovariotomy and other operations involving opening of the peritoneal cavity. Sir Spencer Wells lost eleven out of his first series of a thousand cases of ovariotomy from this cause. Fritsch places his mortality from ileus post-laparotomian at 1.6 per cent. Klotz has reported 31 cases of intestinal obstruction, with five deaths due to this complication in a series of 421 abdominal sections and 148 vaginal extirpations of the uterus. The speaker had seen a case in which the small intestine was doubled upon itself, and so firmly adherent that the gut was entirely impervious. Similar cases have been reported by Skutsch and Tuttle. Joseph Price quotes an interesting case from Louis, in which an adherent ovarian cyst emptied by the trocar so dragged upon the bowels as to cause obstruction. Volvu-

lus sometimes occurs after abdominal section, but probably only after some previous adhesion or constriction of the bowel. Two cases reported by Nieberding illustrate this. The symptoms of intestinal obstruction post-laparotomian are essentially the same as those of primary obstruction. Klotz has had much success in treating acute obstruction following abdominal section by the following method: As soon as symptoms indicating obstruction appear he washes out the stomach with from four to six quarts of warm salt solution. Should this fail to relieve the symptoms he repeats the procedure, and then passes into the stomach through a tube a large dose (one-and-a-half to two ounces) of castor oil. In all cases so treated the active peristaltic movements set up caused passage of flatus and feces within ten hours. Evidently it is only in cases of fresh and friable adhesions that this method can be successful. Rectal injections of water or air may at times be curative when the obstruction is due to intussusception, volvulus, or soft adhesions of the lower portion of the intestine, but when the obstruction is due to cords or bands they can manifestly be of no avail.

Third Day—Morning Session.

Dr. L. H. Dunning, of Indianapolis, Ind., contributed a paper on "Nephrectomy," in which he reported four cases, of which the following is a synopsis:

Case 1. Nephrectomy for painful movable kidney. An unsuccessful nephrorrhaphy had been done two-and-a-half years previously. The patient had been bedridden four years. A lumbar nephrectomy was done, the patient recovering, and obtaining entire relief from pain. The author deplores the necessity of removing a healthy kidney only because movable and painful. He thinks that the success of recent methods for anchoring the kidney will obviate the necessity of such a procedure

Case 2. Nephrectomy for persistent hydronephrosis due to stricture of the ureter at its pelvic extremity. The tumor was mistaken for an ovarian one. It was removed by a median abdominal incision.

Case 3. Sarcoma of the kidney in a child two years old. Nephrectomy and recovery. The tumor had been discovered only four weeks previously. A median incision (abdominal) was employed.

The writer has collected the histories of twenty cases of sarcoma of the kidney, operated upon since 1885, in children under five and-a-half years of age. Of these 5 perished and 15 survived the operation, thus showing a mortality of 25 per cent. This is a surprising decrease in mortality, and is probably due to improved details in technique rather than to radical changes in the method of operation.

Case 4. Nephrectomy for uretero-vaginal fistula following vaginal extirpation of a cancerous uterus. The operation was done four weeks after the hysterectomy. The ureter was torn across in enucleating a nodule of cancerous tissue from the folds of the broad ligament on removal of the uterus. Nephrectomy was done four weeks subsequently, because of intermittent closure of the fistula and the morbid mental condition of the patient. The carcinoma had recurred in seven weeks, and the patient died three months later of exhaustion and septicemia.

"Progressive Cutaneous Atrophy of the Vulva (Kraurosis Vulvæ)." Dr. C. A. L. Reed, of Cincinnati, read a paper with this caption. He reported six cases in which the pathologic and clinical features were characteristic. The first changes obvious to the naked eye consist of small vascular areas around the introitus vaginæ. These areas are not elevated as if seats of merely inflammatory engorgement, but are slightly depressed relatively to the adjacent epithelial surfaces. They are exquisitely painful to the touch, and efforts at sexual intercourse are generally agonizing and futile. About this same time inspection will reveal a narrowing of the vaginal orifice, associated with diminished elasticity of the structures. The cutaneous or muco-cutaneous surfaces will now be observed to have lost a certain proportion of their pigment, giving them a more or less translucent appearance, which increases until it becomes so transparent that the larger capillaries and minute ecchymoses may be readily discerned beneath it. The skin thus affected becomes tense, effacing in a more or less degree all of the normal folds of the vulva and narrowing the vaginal orifice until, in the case of a multipara, "incredulity may be excused when the patient states that she has borne children."

Knowledge relative to progressive cutaneous atrophy of the vulva is too nebulous to justify final conclusions. That which seems to be conclusively demonstrated may be summarized as follows:

1. Progressive cutaneous atrophy of the vulva is a distinct disease. 2. It is of very rare occurrence. 3. It is essentially inflammatory in character, differing from other inflammations of the skin in the marked progressive atrophy which succeeds the stage of hyperemia and infiltration. 4. It is limited in its manifestations to the vulva. 5. It is manifestly not of syphilitic origin. 6. Its etiology is so obscure as to suggest a primary causal lesion in the trophic nerve-supply of the vulva. 7. The affected areas may be successfully excised.

Dr. George F. Hulbert, of St. Louis, read an interesting paper on "The Element of Habit in Gynecic Disease," an abstract of which would not do it justice.

One of the interesting features of the meeting were remarks on intestinal anastomosis and a beautiful demonstration of the uses of the Murphy button by Dr. J. B. Murphy, of Chicago.

"Restoration of Intestinal Continuity Without Mechanical Devices," was the next paper, by Dr. W. E. B. Davis, of Birmingham, Ala. The purpose of this paper was not to claim originality for any special technique, but rather to consider the various operations and to show that mechanical devices can in a great proportion of cases be better dispensed with by the surgeon who has had much experience in intestinal work, either on the lower animals or on the human intestine. Still there is a place in anastomotic work for bone plates, catgut plates, and other devices of this sort, and the Murphy button, but the experienced surgeon will find the field of their application very limited. These devices are of great assistance to the surgeon of limited experience in this class of work, and should be recommended in the event of an operation having to be done by one who has not had the opportunity of becominn familiar and skilled in suturing of the intestines. The Murphy button is a valuable device for cholecystenterostomy, and is superior to anything yet suggested for that purpose. The button is so small that it can pass

through the intestine without causing any trouble, and it can be depended upon with almost absolute certainty to produce satisfactory adhesion and a competent opening between the gall-bladder and intestine. The end-to-end operation or circular enterorrhaphy is a dangerous procedure, from the fact that injury to the mesenteric border is liable to produce sloughing, and it is never possible to say that a surgeon will not have this complication follow the operation. Besides, any stitch-method in the end-to-end operation requires so much time that it should be objected to usually on that account. The Murphy button can be used very satisfactorily for this purpose, and when end-to-end operation is to be resorted to Dr. Davis is of the opinion that this device should be used unless the surgeon is an expert in intestinal suturing. The operation of Abbe is a plausible one, but is not so reliable as the one which has proved satisfactory in the experimental work of the author. The incision is not made so long as in the case of Abbe, and is about three inches in length. In the case of gastro-enterostomy the intestine and stomach are both brought into the wound, and the incision three inches in length made in both. Interrupted sutures are taken through coats of the bowel and stomach around the entire length of the incisions, and are tied on the inside, the last stitch being tied on the outside and turned in. A continuous outside safety stitch is then taken through the peritoneal and muscular walls. In bringing the small intestine together the same procedure is followed, the interrupted through-and-through stitch of large silk being taken instead of an overhand stitch, as recommended by Abbe, and only one row of outside sutures, which may be interrupted or continuous, preferably the latter. This operation can be done very quickly, and is more reliable than the various ones with mechanical aids to anastomosis. Particularly is this method of operating valuable in cases of simple stricture of the bowel, and there will be a great many of these cases now, inasmuch as there are more operations done on the intestines.

DR. F. BLUME, of Allegheny, Pa., reported a very interesting case of "Cholelithiasis" in a woman thirty-seven years of age, in which the number of calculi removed, besides minute concretions, was 123, weighing 14 drams. The stone removed from the gall-bladder weighed four and three-quarter drams.

"The Reason Why Patients Recover from Tuberculosis of the Peritoneum after Operation" was the next paper, by Dr. ROBERT T. MORRIS, of New York. The author stated that he had been experimenting with a view to determining the reason for the cure of tuberculosis of the peritoneum after operation, it being a well-known fact that more than 80 per cent. of these cases recover as a result of simply exposing the peritoneal cavity to the air. Dr. Morris collected fluid from the abdominal cavity of patients with tuberculosis of the peritoneum, placed it in an incubator for forty-eight hours and developed the bacteria of putrefaction which would ordinarily enter in such fluid exposed to the air. From this fluid Dr. Eiloart then isolated a toxalbumin, the product of the growth of putrefactive bacteria in this peritoneal fluid. The toxalbumin employed to destroy tubercle bacilli in culture-tubes destroyed them very promptly. A control experiment, which was not yet completed, was in progress for determining if these bacteria were absolutely dead. However, enough had been proved to show that tuberculosis of the peritoneum recovers after operation because putrefactive bacteria produce a toxalbumin in the fluid which is fatal to tubercle bacilli in the peritoneum. The reason why it is more effective in curing cases of tuberculosis of the peritoneum than tuberculosis of the knee-joint is because the anatomy of the peritoneum is such that any toxic agent absorbed by the lymphatics of the peritoneum is brought into close contact with the entire structure; whereas, in the knee-joint, the lymphatics are fewer and with more definite channels.

The following officers were elected: *President*, Dr. J. Henry Carstens, Detroit; *First Vice-President*, Dr. W. E. B. Davis, of Birmingham, Ala.; *Second Vice-President*, Dr. Henry Howitt, Guelph, Ont.; *Secretary*, Dr. William Warren Potter, Buffalo; *Treasurer*, Dr. X. O. Werder, Pittsburg.

The place of meeting for 1895 was referred to the Executive Council for decision.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Abstract of the Proceedings of the Twenty-second Annual Meeting, held in Montreal, P.Q., September 25, 26, 27, and 28, 1894.

(Continued from page 392.)

SECOND DAY—MORNING SESSION.

The Executive Committee recommended the creation of a new commitee, consisting of five persons, to be entitled a "Committee on Steamship and Steamboat Sanitation." This was approved by the Association.

DR. N. E. WORDIN, of Bridgeport, Conn., read a paper on "The Restriction and Prevention of Tuberculosis." He showed that consumption was a communicable disease, and that the principal source of danger of its spread lay in the sputum ejected by a phthisical patient when it had become dry. The breath of a consumptive contained no bacilli, and was not infectious. Phthisis might be communicated by osculation, and among the hygyenic commandments should be one for the syphilitic and the consumptive, "Thou shalt not kiss." He considered that the most practical and the quickest way of restricting the spread of the disease will be to put it on the list of infectious or communicable affections to be reported to the health officers. There should be a thorough disinfection of all houses in which the disease has occurred, and this should be put on public record.

Dr. E. GAUVREAU, of Ste-Foye, P. Q., read an interesting paper on "Culture and Collection of Vaccine-Lymph." He described the process followed in the institution with which he is connected for the culture and collection of vaccine-lymph, showing that every care is taken to insure absolute safety to the people using the points.

DR. F. O. DONOHUE, of New York, read a paper entitled "The Examination of the Milk-Supply for Tuberculosis in the State of New York." In May, 1892, New York took a step forward in authorizing its Board of Health to make investigations in reference to the existence of tuberculosis in cattle. The relation of the milk-supply to infant mortality from tuberculosis was insisted upon by all health-officers who had made the subject one

of systematic observation. That milk and its product convey tuberculosis had been amply proved. When it is considered that milk is the principal aliment during childhood, and enters largely into the diet of all classes, it is a highly important question. Statistics of New York State show that for a period of eight years last past every eighth death was caused by tuberculosis. The State Board of Health evolved the lesson that tuberculosis existed in the dairy cattle to quite a large extent, and that special legislation was necessary to deal with it. It would take time to eradicate this disease from the dairy cattle. It is confidently expected that future legislation will be enacted, carrying with it an appropriation commensurate with the magnitude of the work.

Dr. Paul Paquin, of Missouri, contributed a paper entitled "Should the Marriage of Consumptives be Discouraged?" He held that the marriage of a tuberculous person with a healthy person must lead to the infection of the latter, and that the children born of tuberculous parents are always naturally predisposed to tuberculosis. Thus the centers of infection are increased, and the danger to so-society is made much greater. No tuberculous person should marry, and it is perfectly proper for science to interfere and use all its influence to prevent such marriages.

"The Climatic Segregation of Consumptives," was the next paper, by Dr. Henry Sewall, of Denver. He proposed the following plan for the treatment of pulmonary tuberculosis in its early stages, viz., the establishment of favorable points in Colorado of a series of cottage sanatoria. The cottage-plan he thought was eminently the best in its adaptation to the character of the climate, the people, and the disease. The efficiency and feasibility of such an institution had already been established in the Adirondack cottage of New York, which might well serve as a model for extensive development. These sanatoria should be located at points of various altitudes above sea-level, from five to eight thousand feet. They should be located with due regard to climatologic conditions, purity of water supply, beauty of scenery, accessibility to railways.

There was no afternoon session, the Association having, by invitation of the local members, taken a pleasant trip over the Lachine Rapids.

Second Day—Evening Session.

This session opened with an interesting sketch, illustrated by lantern slides, of "The Quarantine Appliances at Grosse Isle," by Dr. F. Montizambert, General Superintendent of Canadian Quarantine. Dr. Montizambert briefly and interestingly explained the mode of boarding ocean ships, examination, disinfection, and hospital treatment.

"Some Points in the Hygiene of the Young in Schools," was a paper read by Dr. J. Chalmers Cameron, of Montreal. He asserted that the nation which would be the most prosperous is that which seeks the highest development of its members, and proceeded to show how closely allied the mind and body are, and stated that they developed simultaneously. The speaker dwelt on the need of thorough instruction in hygiene to the young. A man with a good body and poor education is often in a better position for securing a good livelihood than the man with a good mind in an unsound body. Therefore the necessity exists to give physical as well as literary instruction.

Mr. John Mitchell, of New York, read a paper entitled "Plumbing in Sanitation." He advocated a semi-annual inspection of all houses for sanitary measures.

Dr. T. D. Crothers, of Hartford, Conn., read a paper on "The Influence of Inebriety on Public Health." The facts he desired to make prominent were:

1. The influence of inebriety on public health is of far greater magnitude and more closely associated with the various sanitary problems of the day than is realized at present.

2. Our present conception of the extent, nature, and character of inebriety is erroneous, and based on theories that are wrong. Our methods of dealing with inebriates are most disastrous and fatal in not only destroying the victim, but in perpetuating an evil we seek to lessen.

3. These patients must be recognized as diseased, and should be housed in farm-colonies, under military care and medical treatment. They must be organized, employed, placed in hygenic surroundings, and made self-supporting.

The present duty is careful medical study of this class of cases and full recognition of their needs and requirements. The sanitary problems that confront our civilization are very closely associated with the inebriate class.

Third Day—Morning Session.

The Secretary of the Association, Dr. Irving A. Watson, of Concord, N. H., read a short paper on "A Journal of the American Health Association," in which he spoke in favor of the Association publishing a quarterly journal, instead of an annual volume of *Transactions* as at present. In his opinion, a quarterly journal could be published at less cost than an annual volume of transactions, and it would increase the influence and strength of the Association by making its objects better known.

The matter was referred to the Executive Committee for its action.

"Vaccine and Vaccination" was next considered by Dr. Ralph Walsh, of Washington, D. C. So-called cowpox being simply modified variola, the admixture of glycerin with vaccine lymph will destroy all extraneous bacteria without injury to its peculiar active principles. The admixture of glycerin with vaccine lymph not only destroys the extraneous bacteria, but prolongs the activity of the lymph. The selection of lymph and the simple but important operation of vaccination had not received from the profession the attention they deserved. The physician should see that each infant brought under his care is successfully vaccinated during the first year of its life, and each child again at sixteen, or, better, to the point of saturation during infancy. The accumulation of unvaccinated material, and consequently the increased danger of outbreaks of smallpox, is caused by the general physician failing to perform his duty at the proper time.

Dr. G. P. Conn, of Concord, N. H., followed with the "Report of the Special Committee on Car-sanitation." He said the railway employé should be instructed in the use of hygienic appliances, and all roads having a surgical department should extend this work into the domain of hygiene, and give the surgeon-in-chief authority to inspect, instruct, and to hold responsible such

employés as are in any way concerned in maintaining a healthy condition on our trains.

DR. FELIX FORMENTO, of New Orleans, as Chairman of the International Committee on Yellow Fever, presented his report, in which he pointed out that since the modern health-regulations adopted by the State of Louisiana yellow-fever had practically disappeared from the State, and that with an efficient system of quarantine the dreaded disease can be excluded.

MR. RUDOLPH C. HERING, of New York, presented the Report of the Committee on the Disposal of Garbage and Refuse. He had no faith in the schemes for the disinfection of garbage. The plan of separating or reducing the garbage also offers dangers, and, all things considered, incineration seems to be the best method.

DR. DURGIN, of Boston, reported a process for drying garbage as it is produced in the kitchen, after which it can readily be burned in an ordinary stove, thus doing away with the whole question of the disposal of garbage. The apparatus to secure this result consists of a sheet-iron box fitted with grates and connected with the stove-pipe. The heat passing from the stove to the chimney dries the garbage.

DR. N. E. WORDIN, of Bridgeport, Conn., followed with a paper on "The Disposal of Garbage."

DR. JESUS E. MONJARAS, of San Luis Potosi, Mexico, and DR. S. GAUTHIER, of Upton, Quebec, read papers on "The Advisability of Teaching the Rules and Principles of Hygiene in the Primary Schools by Means of Object Lessons."

DR. T. D. REED, of Montreal, read a paper entitled "Hygiene of Vision in Schools," and DR. T. M. BRENNAN, of the same city, one entitled "A Few Remarks on School Hygiene."

DR. ANDREW MCPHAIL, of Montreal, contributed a paper entitled "One Hundred and Twenty Cases of Paralysis in Children." The belief was held at first that the outbreak was one of cerebro-spinal meningitis, but he showed in the clearest manner that it was a true myelitis. In some children the paralysis came on without any symptoms; in others there was a previous illness of a few days, resembling indigestion. There were also notes of six cases in adults, three of which terminated fatally. In conclusion, he dwelt upon the necessity for having in every State a properly-conducted laboratory and a competent staff to deal with such outbreaks, and a board of health with authority to investigate epidemics and perform autopsies.

DR. L. LABERGE, of Montreal, read a paper entitled "The Advance of Public Health in the City of Montreal." He outlined the development of the several matters connected with the public health of the city and the legislation by which they were governed with reference to milk-inspection, meat-supply, ice-supply, etc.

"Myopia in its Relation to School Hygiene." This was the title of a paper by DR. A. F. FOUCHER, of Montreal. The eye afflicted with myopia is an extremely delicate organ, which should be but sparingly brought into use; therefore we cannot exact from it the labor which we have a right to expect from an emmetropic eye. The speaker presented charts which illustrated that myopia is more prevalent in the secondary than in the primary schools. In the primary schools of Russia it is 14 per cent., and in Germany, Austria, France, Holland, New Zealand, United States, and Switzerland, 13 per cent.; Norway, 11 per cent.; England, Roumania, and Belgium, 13 per cent. In the secondary schools in Austria it is 38 per cent.; in Switzerland, 36 per cent.; and Germany, France, Russia, and Denmark, 36 per cent.; Italy, 38 per cent.; Sweden, 34, and England 38 per cent.

DR. HINGSTON, of Montreal, spoke of the influence of the Canadian climate on health.

DR. S. W. ABBOTT, of Boston, as Chairman of the Committee on Nomenclature of Diseases and Forms of Statistics, presented his report. The committee considered changes in the nomenclature and classification of diseases, and causes of death, uniform methods of reporting statistics, uniform methods of estimating population and death-rates, and the adoption of a standard of age-distribution. It is plain that a fair comparison could not be made of the death-rates of countries, cities, and towns in which age-distribution is widely different; hence the importance of adopting some conventional standard to which all populations may be referred or with which they may be compared.

FOURTH DAY—MORNING SESSION.

DR. T. M. BRENNAN, of Montreal, read a paper entitled "A Plea for Aseptic Vaccination." The speaker urged the necessity of performing vaccination under antiseptic conditions.

DR. K. CAMERON, of Montreal, followed with a contribution on "Infection by the Bacillus Pyocyaneus as a Cause of Infant Mortality." It was not until 1889 that this bacillus was found to produce a definite general infection in young children. The author reported four cases of pyocyanic infection, and drew the following conclusions:

1. That the infant tissues are susceptible to the invasion of the bacillus pyocyaneus.

2. That the bacillus is distinctly pathogenic, setting up a disease-condition peculiar to pyocyanic disease.

3. That this disease is characterized by a train of very definite symptoms, such as diarrhea, fever, rapid emaciation, rigidity of the legs, and hemorrhagic and bullous eruptions.

4. That the disease appears to be very fatal.

As this combination of symptoms occurs not infrequently in young children, especially when congregated in nurseries and foundling asylums, he ventured to infer that a certain proportion of the deaths which now appear upon our records of vital statistics under the headings of gastro-enteritis, purpura, or marasmus, were in reality cases of generalized pyocyanic disease.

The closing paper of the Convention was read by MR. J. W. HUGHES, of Montreal, entitled "Evolutionary Developments of Domestic Plumbing during the Past Thirty Years."

Several of the papers on the program were read by title and referred for publication in the *Transactions* owing to the absence of the authors.

The following officers were elected: *President*, Dr. William Bailey, of Louisville, Ky.; *First Vice-President*, Dr. G. P. Conn, of Concord, N. H.; *Second Vice-President*, Dr. G. Mendizabal, of Orizaba, Mexico; *Secretary*, Dr. Irving A. Watson, Concord, N. H.; *Treasurer*, Dr. Henry D. Holton, Brattleboro, Vt. *Place of Meeting*—Denver, Col., the date to be decided upon by the Executive Committee.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

THE TREATMENT OF CHRONIC OÖPHORITIS BY LOCALIZED ELECTRICITY.[1]

BY EDWARD SANDERS, M.D.,
OF NEW YORK.

IN no branch of medicine or surgery does fashion govern our actions and modes of treatment more than in gynecology. Theory after theory, method after method of cure have from time to time been introduced with a great flourish, and, having the glamor of a great name to guarantee their power, have for a while taken a firm hold upon our affections, until some other and perchance better measure has pushed its predecessor aside, only in time to suffer a similar fate. Each, however, has added something to the total of our general knowledge, and assisted us somewhat toward reaching the goal for which we are all striving—perfection in diagnosis and treatment, the reduction, if such be possible, of medicine to an exact science. Thus we have had Bennett with his inflammatory theory; all genital ailments in the female, according to him being dependent upon inflammation of the uterus, which was to be combated vigorously by caustic applications. This for a while prevailed, and every physician wielded his speculum and his little stick of silver nitrate. Then came Graily Hewitt and his assertion that all depended upon uterine displacements; and pessaries, big and little, round and square, thick and thin, and of almost inconceivable shapes, were forced into the vagina, and the average female trotted about encumbered like a pack-mule, only her load was carried not without but within, there to do its best or worst unseen. Reaction, however, set in, though still to-day pessaries are used rather indiscriminately. Then came Tilt, with his ovarian theory; but this influenced practice but little at the time, though at present there seems to have been a revival of it. Following this we had Marion Sims, with his operative craze, and this has gone on growing and growing almost up to the present day, until it has become a very serious matter for a woman to consult a gynecologist, whether urban or suburban, for fear that the verdict may be, "out with your ovaries," or some other form of operative interference. But, thank the good Spirit that watches over us poor physicians, the reaction has set in at last, wiser counsels are beginning to prevail, and from time to time a voice, feeble though it be, is raised, and we hear protests against indiscriminate and needless operations. Like its predecessors, the operative method will take its proper place, and those only will be submitted to cutting in whom the indications justify such interference.

We are now entering upon a new phase in gynecology; in fact the road is already long behind us, though considerable ground yet remains to be covered. That mysterious yet extremely manageable force, electricity, which the laity so dread, and which we physicians so little understand, is rapidly taking its place among the active agents employed to combat female ailments, and all around us we hear praise or blame, one staking his all on electricity, another maintaining its absolute uselessness. Between these widely opposed factions it is our duty as unbiased judges to learn the truth, and thus determine the proper standing of electricity. Electricity as a curative agent in gynecology is not a new thing, but up to within a comparatively short period, even as late as 1884, it was used in such an irregular, unscientific, and erratic manner that all deductions based on such use were absolutely worthless from a practical point of view. Uniformity of application was an unknown thing, and as regards dosage, means were not at hand to measure the amount given, the number of cells determining in an uncertain and unreliable way the current-strength, the poles being used without any knowledge of their special actions; while such batteries as were to be obtained were crude and extremely uncertain in action, having more humors than a spoiled child. All this is now changed, cells are being steadily perfected, so that they can be depended upon to work in a definite way when work is required, the results of weak and strong currents are gradually being made known to us, the different effects of the individual poles are matters which now can be positively foretold, while instruments for accurate measurement and the gradual turning on or off of the current are at the command of all.

It has been my privilege during quite a number of years to have carefully investigated the various applications of electricity in gynecology, and, although my applications now amount to a very large number in the treatment of the various genital

[1] Read at the Tenth Annual Meeting of the Fifth District Branch of the New York State Medical Association, held in Brooklyn on May 22, 1894.

affections in the female, in no one of them have I found this agent more useful than the one we are now about to consider.

As a clinical entity chronic oöphoritis is of comparatively frequent occurrence, more so, in fact, than is generally supposed, though pathologically its existence is somewhat more often made evident by changes discoverable upon the post-mortem table alone, changes which during life were unsuspected. Thus it is probable that fully 2 per cent. is the margin between clinical and pathologic diagnosis. During a series of years every gynecologic case presenting itself to me had the ovaries carefully interrogated, even when there were no symptoms referable to these organs, and among 5262 such cases of genital disease 289, or 5½ per cent., were found suffering from the disease in question. Such cases were very rarely simple, although occasionally so, uncomplicated oöphritis being an exceedingly rare affection; but they were almost invariably conjoined with some other genital disease, endometritis most frequently, or some form of tubal disease. On the post-mortem table both Pollock and Hennig have found the malady in about 8 per cent. of all cases examined. We thus note, as before stated, that about 2 per cent. go undiagnosticated during life. Nor is this surprising when we remember the difficulties surrounding the examination of the ovaries. Every pain in the region of these organs does not necessarily mean their disease, nor does its absence indicate absolutely a healthy organ. I have seen a number of cases in which examination alone revealed the presence of advanced ovarian disease, there being nothing outside of physical examination pointing to the existing chronic oöphoritis. The diagnosis of disease of the pelvic organs, as we all know, even in the hands of the most expert, is often a very doubtful matter, which operation alone can clear up, and even then, after the offending organs are removed, the doubt can at times be solved by the microscope alone. Only a short time since I was present at a celiotomy, the right ovary and tube being removed by one of the most expert and well-known of New York's celiotomists, yet even after removal the diagnosis remained unmade. Before operation the case was supposed to be one of pyosalpinx, yet during and after removal absolutely no indication of pus could be found, the ovary itself being perfectly normal, while a number of small communicating cysts were found in the broad ligament beneath the tube, which the operator thought might possibly be the remains of an old ruptured extra-uterine pregnancy, but decided to await the results of microscopic examination before expressing a positive opinion.

Considering then about 6 per cent as the detectable frequency of chronic oöphoritis, making the disease a comparatively frequent one, the important question arises, the diagnosis being accurately made, What shall we do in the way of cure? Up to within a comparatively short period but two methods were available, the relatively mild medical measures or the radical one of the knife. Of late, however, a third method claims our attention—disputing the palm with surgery—electricity, whether in the form of the direct or constant current, galvanism, or the indirect or interrupted current, faradism.

A new measure, before it can lay any claim to recognition, must have certain advantages over the older ones, and must be positive, capable of proof and easy of demonstration. If we have an old ruin which we are desirious of replacing by a more modern and stable building, we would not proceed to build directly upon the old, but rather would first remove it to give place to a newer and a better structure, using, perhaps, such parts of the old as are still of value. Now, I do not mean to say that either medicine or surgery are ruins as far as chronic oöphoritis is concerned, but what is claimed is that in a large number of cases the former means are absolutely useless, while a resort to the latter will be found unnecessary after a fair, sufficient and unbiased trial of the agent here recommended.

Medical measures alone against this disease, it can easily be shown, are almost valueless. In recent cases they may succeed sometimes, in old-standing ones absolute failure is almost always the rule.

Such has been the experience of most who have written upon the subject, and such has been mine after many trials of many and diverse agents. "Now a few words on the treatment," says J. Matthews Duncan, than whom there has seldom been a closer and more accurate observer, speaking of this very disease, "and I begin by telling you that you will find a great many cases to be chronic, and this is almost a synonym for incurable. I advise you, indeed, in many cases which resist a properly conducted treatment, to give up the attempt at cure. You will only bother your patient, make her a valetudinarian, and do her harm by further persistence in attempting to cure a disease which proper treatment has failed to remove." Goodell, another acute observer, remarks: "Very little can be said as to the medical treatment of disease of the appendages. It has been dogmatically stated that no treatment other than surgical can be of any relief, yet we are forced to admit that the treatment by drugs and local applications is usually unavailing, although this is due in part to the fact that we seldom see these cases early enough in the disease." Others have expressed similar opinions, and further clinical experience but proves such to be true. We may sometimes temporarily relieve by drugs, whether applied locally or administered internally, but a cure is but seldom obtained, and then only in what

may be termed recent sub-acute cases. Chronic oöphoritis, it is my firm belief, is rarely amenable to medical measures alone.

Medicine having failed, a resort to surgery was but natural. Surgery, being a radical curative measure, which entails a certain danger to life, must be radical in its results. It must cure quickly and thoroughly, and must not be followed by results which are as serious and distressing as the original disease for which it was employed. Oöphoritis in itself, complicated as it almost always is, carries but little danger to life with it, its complications alone constituting its dangerous elements, and even then pus-tubes and ovarian abscess being the only ones that make it dangerous to life. Hence, abscess aside, if surgery does not do what it claims to do, with minimum risks and maximum benefits, it should be set aside for a safer if only equally beneficial measure. That surgery frequently does not do what it claims to do I hope here to show.

1. The operation of salpingo-oöphorectomy is dangerous to life. Take the most skilful specialists, and their operations will show a certain death-rate, the very best and confessedly a remarkable one not falling below 3 per cent; the majority having a mortality decidedly higher than this. True, many of these operations are for diseases of the tubes; but as in both cases the manipulations, methods and technique are the same, while the two forms of disease are usually conjoined, no wide variation in mortality is probable, whether the operation be directly for oöphoritis or for salpingitis. Oöphoritis, although generally complicated, is, as before stated, but rarely dangerous to life, the large majority of its complications, as evidenced by my experience in 250 cases, residing in the uterus itself in about 90 per cent., while the tubes were involved in only about 15 per cent. of all cases, excluding instances of catarrhal salpingitis. The only truly dangerous complication is distention of the tubes, especially when due to pus, and this condition is in my experience found in only about 8 per cent. of all examples of oöphoritis. Considering all cases, no matter what the complication, we may safely conclude that fully 90 per cent. of all instances of chronic oöphoritis carry absolutely no danger to life with them, but simply entail suffering and chronic invalidism. From this point of view, save only as regards coexisting pus-tubes and ovarian abscess, the necessity of a resort to surgery, therefore, must be looked upon as more than doubtful. To subject a patient to the risk of losing her life by operation when life is not endangered by the disease itself is not right, either in logic or in ethics, except, perhaps, only when all other measures have failed and to live on, suffering, has become unbearable. It is not enough to have tried medical measures alone, for these, as we have already shown, most often fail. The agent here recommended should be given a fair trial also, and if this be done the probabilities are that the knife will not be needed, except in a rather small number of cases.

It is to be understood that I am speaking only of cases of chronic oöphoritis without complicating pyosalpinx or other abscesses, the presence of pus in the pelvis being to me always and invariably a contra-indication to the use of electricity in the treatment of any form of pelvic disease, all other complications, excepting acute inflammation here, interfering in no way with the use of this agent. Apropos of the foregoing, I can do no better than quote the following, by so able, conservative, careful, and conscientious an observer as Goodell: "The death-rate from chronic diseases of the appendages is greatly overrated, so much so that, in my opinion, more deaths result from the operation of removing the tubes and ovaries in the hands of even the most successful gynecologist than from the disease itself." Only a short time since I read the following by Dr. Reamy, of Cincinnati (in the *American Journal of Obstetrics and Diseases of Women*, April, 1894, p. 525):

> In forty years I have not seen five cases of death directly traceable to ruptured pus-tubes. And I doubt if the gentleman's experience has been different. I will go further, and make the statement, the truth of which cannot be controverted by the facts, viz., that in the gentleman's own practice during the last five years more women have died after he has operated upon them for the removal of diseased tubes and ovaries, as a result of the operation, than have died among an equal number of women presenting the same symptoms of pus-tubes and pus-ovaries, in the same community, and who were not operated on at all. In making this statement I make no reflection upon the gentleman's operative skill. On the contrary, I assert that the same comparison will hold true of my own work or that of any other gentleman present. It is a principle and the exhibition of clinical truth that I seek.

Comment upon such statements from gynecologists of such large experience is unnecessary.

2. Operators themselves are becoming dissatisfied with the results. Emmet believes that the value of the operation of oöphorectomy, meaning thereby removal of tube and ovary, is very much more limited than Tait, its author, would have us believe. Lusk writes: "The more the question is studied the more clear it becomes that the loss of her ovaries does make a difference to a woman. It is time to echo in this country Doléris' cry in France: 'Too many useless mutilations; not enough conservative gynecology.'" The late Dr. C. C. Lee was convinced that something must be radically wrong, and that an evident necessity existed for the clearer demarcation of cases appropriate and inappropriate for operation. Doléris believes that eight-tenths of the women operated upon have submitted needlessly to mutilation. Having the best of opportunities

for seeing a large number of gynecologic cases, Doléris had come to believe that conservative treatment was usually more successful than the radical operation in the cure of pelvic inflammations. "The latter," he writes, "may be justifiable for myoma and encysted abscess of the tubes, but when constantly undertaken for follicular ovaritis, catarrhal salpingitis, for pelvic neuralgia, and real or pseudo-hysteria, the subject will bear a little investigation." Mundé, in a paper on the "Conservative Treatment of Salpingitis," remarks: "I believe the time has come when it is well for those of us who are doing abdominal work habitually, and as a matter of our almost daily routine, to take the field against the hasty and habitual removal of the uterine appendages simply because they happen to be more or less diseased."

Thus I might go on quoting writer after writer, all to the same effect, but of what use multiplying complaints when the fact is patent that operators themselves have become dissatisfied. Of late years quite a large number of papers have appeared advocating conservatism, both in the proper selection of cases, as well as in the frequency and plan of operation; and the names of Lusk, Mundé, Polk, and Goodell at home, and Doléris, Pozzi, and Martin abroad but emphasize these pleas for greater care and circumspection. All these cries for conservatism only indicate the dissatisfaction with the results obtained following oöphorectomy. If the masters complain, we ordinary mortals must bow the head in assent.

3. The results are not as radical as the operation. Even the surgeons, as we have already indicated, admit this, though claiming better results than facts would seem to warrant. Thus Skene Keith reports among 23 operations, 19 cures, 2 failures, and 2 instances of improvement only. Keppler in 46 operations met with 39 cures. Boldt in 112 operations had 58 cures. 10 failures, 24 in which improvement only was obtained, and 11 that were either not heard from or in which insufficient time had elapsed to note results; besides these he had 8 deaths. Dr. John Williams maintained, and he was not contradicted, that "in so far as he could gather from the most reliable statistics, about 30 per cent. of patients from whom diseased appendages were removed were cured by operation, many more were benefited and cured by time and other treatment, while the rest continued to suffer. Doran observes that oöphorectomy for chronic disease of the appendages, is, as a rule, followed by speedy convalescence; but, unfortunately, a permanent cure is not so frequent, while in a considerable minority the pains which preceded the operation continue. One of the latest authoritative expressions, from the point of view of the specialist, is that of Dr. Howard A. Kelly in Hare's *System of Therapeutics* (1892, vol. iii, p. 814), which reads as follows, speaking of operations for ovaritis and salpingitis: "Cases which recover promptly from the operation may even continue to suffer just as before; and under the most favorable circumstances the patient goes through a prolonged convalescence, and if she makes a perfect recovery she is usually a year in reaching full health."

The late Dr. C. C. Lee, a careful observer, made it a point to keep track of his operated patients as long as possible, so as to note ultimate effects. Thus he collected 26 of such cases, having kept them under observation for a long time, with the following results: 15 were completely or comparatively successful, 7 were only partially benefited, while 4 were absolute failures. The beneficial effects of the operation, however, only followed after a considerable period of time, the pain persisting often for one or two years to a greater or lesser degree, absolute relief becoming evident only after considerable time had elapsed. In 16 instances only did this distressing symptom entirely disappear after one or more years of further suffering, in 8 instances the relief was never more than partial, while in 2 others no change at all was noted. In 21 of these 26 cases there was some form of oöphoritis or ovarian descent present, and considering pain as the pivotal symptom, in 11 only was the cure in these cases complete; in the other 10 only partial benefit being obtained. Such results as the foregoing certainly do not speak in very flattering terms in favor of such a radical operation as oöphorectomy. To endanger life without corresponding great benefit as the result of such risks incurred is not a very alluring commentary upon the wisdom and conservatism of celiotomists.

4. There are certain after-effects following removal of the appendages which entail as much suffering and danger upon the patient as the disease for which the operation was originally undertaken, if not more.

The artificial menopause, which is thus brought about, is extremely slow in its completion, and is accompanied by much annoyance and suffering. This is a well-recognized fact to-day. Menstruation often persists for some time, either regularly or irregularly, even after absolute removal of both ovaries and tubes, occurring 8 times in 19 instances in my experience, carrying with it the continuance of all symptoms previously referable to that function. If the menopause be brought about, its slowness of appearance but prolongs the flushings, the sweatings, the confusion of ideas, the headaches, the sleeplessness, and the other hundred-and-one petty annoyances that so commonly accompany the physiologic establishment of this change, only intensified and prolonged by its artificial production.

Such is the opinion of Goodell, and also of Hegar, who says that "the artificial menopause induced by the operation is often attended with more serious complications than those which are not rarely observed in the natural change of life." (*Brit. Med. Journal*, December, 1886, p. 1280.) Melancholia and even absolute insanity are not uncommon, more often, apparently, than after other operations. Glavecke, as quoted by Goodell, declares that "in almost all cases the mind becomes more or less affected, and not infrequently melancholia results." In fact he noted actual melancholia in 11 of 33 cases of which he was able to obtain accurate information; while Lee observed depression in 9 of the 26 cases of which he was able to obtain subsequent records.

The sexual sense is often abolished, while dyspareunia either persists if previously present, or may even be instituted by the operation, as I have seen. This loss of desire was formerly maintained not to occur, the reverse being claimed, but further experience has shown that with the removal of the ovaries, the desire for sexual congress is often gradually lost, entailing much unhappiness and conjugal dissatisfaction. Besides, the ability to procreate is forever gone, and in several instances in my experience this has led to the abandonment of the wife by the husband. "My own experience," says Goodell, "would lead me to the conclusion that in the majority of women who have been castrated the sexual impulse soon abates in intensity, much sooner than after a natural menopause, and that in many cases it wholly disappears." Zweifel has found, as the result of the examination of 26 cases, that desire was lost in 3, weakened in 3, unchanged in 10, while it had never existed in 10 others. Lee also found the sexual appetite diminished in 3 of 11 cases. That is, in about one-third of all instances of salpingo-oöphorectomy the sexual appetite was more or less affected unfavorably.

Intestinal obstruction due to constricting bands occasionally occurs. Dr. Carl Beck has met with two such cases, and claims to know of a half a dozen similar ones. Operation here becomes imperative, and deaths are not uncommon.

Abdominal hernia is another sequel to the operation that sometimes occurs, involving the danger of strangulation and death, and either requiring the wearing of a truss or necessitating the recourse to a second operation for its cure.

Fistulæ, either simple or fecal, sometimes follow, constituting a source of great annoyance and discomfort, and making life more miserable than the original disease, and usually also calling for a second resort to surgery.

Within the pelvis many changes causing distressing symptoms may result from the operation, such as adhesions between bowel and uterus, or uterus and bladder, or uterus and the other surrounding parts, the effects of a pelvic peritonitis consecutive to the operation. Symptoms arising from such adhesions are unusually distressing and persistent, and almost impossible of relief.

During a number of years I have personally met with, interrogated, and carefully examined thirty-one cases of oöphorectomy performed by some of the most skilful operators in New York City, the results in almost every case being not particularly flattering to the operator; the intervals intervening between operation and examination varying from two months to seven-and-a-half years, the average interval being one-and-a-half years. Of these thirty-one cases only two may be considered to have been cured by surgery. The other twenty-nine continue to suffer, some less than formerly, others as bad as ever, while still others are, if anything, worse. Thus, considering pain as one of the deciding symptoms, and it is usually this that brings the patient to the surgeon, in only seven was it absent, once it was described as being diminished in intensity, five times unchanged, five times as still "considerable," nine times as still great, and four times as increased; in one of these last instances the patient describing her sufferings as "terrible." A careful analysis of these thirty-one cases shows that in a few only was benefit actually obtained, while in almost all of them but little or nothing was practically accomplished; some, in fact, being really made worse. Thus, in nineteen instances in which both ovaries were removed menstruation persisted in three for a short time, finally to disappear entirely; while in seven others it had continued up to the time of coming under observation; in four irregularly, in two regularly, and in one it was too frequent and very profuse. When one ovary only was removed menstruation persisted in all, regularly in seven, irregularly in three, and too often in two instances. Four times was dysmenorrhea complained of, two of those in whom but one ovary was extirpated describing as intense their sufferings at the time of the flow.

Pain, either pelvic, abdominal, or lumbar, had continued in all but seven cases. Sometimes diminished, though usually unchanged, it was in some instances described as aggravated; in fact, in one case the patient maintained that it had been instituted by the operation. Benefit in some cases followed quickly, but was only temporary, and with time the pain recurred as badly as or even worse than before.

Nervous symptoms closely approximating those indicative of the physiologic menopause were present in thirteen of the nineteen cases wherein both ovaries were removed, while observed in only four of the twelve instances of removal of one ovary. These were persistent during a long period of time,

showing but little evidence of abatement, and were the source of extreme suffering, both mental and physical, rendering life miserable and a burden both during waking and sleeping hours. Hysteria, sometimes of a severe type, existed in seven cases; while headaches were bitterly complained of in as many as eight instances. Tremblings, palpitations, flashes of heat, chills, flushings, vertigo, nausea, vomiting, frequent urination, retention of urine, sleeplessness, thirst, free perspiration, distention of the abdomen, constitute but a partial list of the symptoms of which these women bitterly complained. Two suffered from confusion of ideas, two from great excitability, while one stated that at times she acted as if insane, so her friends told her. One suffered from frequent epistaxis following the operation, while in five painful defecation, indicating rectal involvement, was noted, in one the pain being so intense that evacuation of the bowel was avoided as much as possible. The state of the sexual sense could not be determined in the large majority of cases. In one patient sexual congress was indulged in apparently normally and without pain. However, in two others dyspareunia was described as present, being so severe in one as to absolutely interdict intercourse, while in the other it had made its appearance only following the operation. In one other case the atrophy and contraction of the vulval and vaginal parts had been so great as to prevent absolutely the introduction of the male organ, and this in a woman of but thirty years of age two years after the operation. In two others there was narrowing of the vagina noted, while in still another case there was considerable pain at the introitus in attempting the introduction of the examining finger.

Abdominal hernia was met with in two cases.

Now as regards the condition of the parts within the pelvis. The uterus itself was more or less firmly bound down in six cases, while in five others there was more or less shortening of either broad ligament, drawing the uterus to one or the other side. In eight instances exudative masses, indicating previous peritonitis with agglutination of parts, were found, and constituted a source of discomfort and pain. In sixteen instances there was pelvic sensitiveness more or less extreme; sometimes the slightest pressure by the examining finger inducing great pain. With such a condition of the internal parts as here described we can easily understand why such patients should suffer. New pathologic changes, most likely owing their origin to the operation, had replaced the original disease, giving rise to symptoms just as persistent and unbearable as those dependent upon the morbid changes for which the operation was undertaken and even more difficult of relief. Truly a deplorable issue after so much risk to life. A candid review of my cases compels the following verdict as regards cure, benefit in each instance being given to the operation when there was doubt. Twenty-two were in no way improved, seven were partially relieved, and but two were cured. Of course, it is not claimed that such cases are fairly indicative, since they are such as have continued to suffer following the employment of the knife, and have sought other advice than that of the surgeon who operated. They but go to show, however, how many such there are, for it is hardly likely that I alone have been fortunate or unfortunate enough to meet with so many. Others must have had a like experience, and the number of such cases going from dispensary to dispensary, from hospital to hospital, and from physician to physician, without relief, it is impossible to estimate. But their number must be very considerable.

Taking Dr. Lee's results as the standard, we have 58 per cent. of cures, 27 per cent. of relief, and 15 per cent. of absolute failures among those surviving the operation. In round numbers, about one-half of all cases submitted to the knife stand a chance of ultimate complete recovery. Nor is such a result obtained rapidly. Months and even years must intervene, amidst distress and suffering, before a cure is brought about. A radical measure like extirpation of ovaries and tubes should do its work quickly; its benefits should be marked and soon apparent. But, unfortunately, experience has shown that this is not so, and even the surgeons themselves are forced to admit that their results are not obtained promptly and are not up to their expectations. The surgery which removes diseased ovaries and tubes so skilfully and with such comparative safety may indeed be brilliant, but the results are hardly worthy of such brilliancy. It is the old story of the hare and the tortoise, somewhat altered and adapted. The surgeon is the hare who quickly removes the offending organs and then slumbers, considering the race won, the cure wrought; while the cure, the tortoise, plods on slowly. He may reach the goal of recovery ultimately, or he, too, may pause by the way.

It is not claimed that surgery should never be resorted to for the relief of chronic oöphoritis. Far from it. In properly selected cases, when other measures, persistently and intelligently applied, have failed, or when we are sure of the presence of pus, it constitutes the only measure of hope for the patient.

If, therefore, medicine offers no hope, and surgery is only to be considered the court of final resort, and is to be restricted to a smaller field than it at present fills, what is there to take the place of these agencies in the combating of so comparatively common a disease as chronic oöphoritis? I unhesitatingly answer, Electricity, whether the primary or

the secondary current. He who recommends such an agent, such a force as this, in the treatment of a disease like chronic oöphoritis, is almost sure to draw down upon himself the wrath of the gods, the gods of celiotomy, who have come to claim this field as their very own. Electricity is to the gynecologic surgeon what the red rag is to the bull. You praise it before him, and his ire is aroused, and his mental horns, ever ready to strike a blow for his specialty, whether with or without reason, are lowered, and the poor champion of electricity is supposed to be thrown to the ground and mangled beyond the hope of redemption. Nevertheless, truth cannot be crushed by mere words, even by those of a celiotomist, and that electricity is of immense benefit in the management of chronic oöphoritis it shall be my pleasure to show.

(To be concluded.)

THE SPECIFIC CURE OF DIPHTHERIA BY ANTITOXIN.[1]

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To Brieger we are indebted for much of our knowledge regarding bacterial ptomaïns, but Behring seems to have been the leader in the recent researches regarding the feasibility of prophylaxis, immunization, and the specific cure of infectious diseases by use of the antitoxins of the blood-serum. Much of this work is comprised in his monograms upon *Blood-serum Therapy* and *Diphtheria*, respectively.

It may be of interest to inquire into the probable nature of the germicidal, antitoxic or immunizing substances which are contained in the blood-serum in association with or subsequent to the invasion of the system by certain acute infectious diseases. The Klemperer brothers, who have contributed so much on the immunization of animals against pneumonia, and have succeeded in preserving various species, absolutely refractory to this disease for long intervals, believe that the antidotal agents referred to are albumins; Halliburton and others regard them as globulins; Gamaleia characterizes them as nucleo-albumins; Victor Vaughan and McClintock, in our country, who claim to have isolated this germicidal constituent of the blood-serum, say it is a nuclein. Behring seems to incline toward its proteid nature, and states that its albuminoid character is doubtful on account of the demonstration of Ducleaux regarding the constitution of these latter substances. Lœffler, Yersin, and others, also believe that the substance in many instances, as in the case of diphtheria, is a diastase or ferment, the important argument being that it is soluble in alcohol. Brieger and Frænkel have defined the diphtheria-toxin as a tox-albumin.

The precise mode of action of the immunizing substances is still *sub judice*, but, according to Behring, they perform their function in one of the following ways:

1. By destroying the living microörganisms.
2. By inhibiting their growth.
3. By depriving them of their power to generate toxic products.
4. By destroying the poisons produced by the germs.
5. By increasing the resistance of the central organs or the cells against the poisons of the bacteria.

In regard to the source of the germicidal agents of the blood-serum produced in the course of the infectious disease, Guitéras and others believe that they are the products of the cells of the membranes, especially the serous membranes, and that they are held in suspension by the blood-serum. Hankin, in a late dissertation, proposes that these antitoxins may be a special secretion of the eosinophile granules of the blood. At any rate, we know that there remains in the system, after an attack of an infectious disease, as a result of the expenditure of the energy of the microörganisms producing the disease upon the secretions and tissue-cells, complex and as yet undetermined compounds, which protect the individual to a greater or less degree against future invasion, and which if properly extracted, may be appropriated in the treatment or cure of the corresponding disease, or in conferring immunity upon such as are susceptible.

The pneumonia-coccus produces a pneumotoxin, the presence of which in the body causes great elevation of temperature, and the subsequent elaboration from the body-cells of a substance antidotal to its action—anti-pneumotoxin. When the anti-pneumotoxin is produced in sufficient quantity to neutralize the pneumotoxin the characteristic crisis of pneumonia occurs, followed by convalescence.

Experimental injection of the pneumotoxin causes the same elevation of temperature as occurs in the natural course of the disease. The same may be said with reference to use of the toxins of tetanus, diphtheria, anthrax, cholera, typhoid fever, and other disease-germs.

In animals prostrated by pneumotoxin, or in those suffering from pneumonia of ordinary origin, the injection of the blood-serum of a convalescent animal causes a rapid subsidence of the symptoms and fall of temperature—an artificial crisis. As intimated, immunity may also be conferred upon animals by the subcutaneous or intravenous injection of this substance, as it may also be by the subcutaneous or intravenous administration of filtered bouillon-cultures of the germ which produces pneumo-

[1] Read before the Buffalo Academy, September 18, 1894.

nia—the Frænkel-Weichselbaum diplococcus or the micrococcus lanceolatus. This immunity, made complete by the use of large doses, lasts for six months, during which time it may be transmitted to the offspring.

It would appear that in the presence of an infectious disease the body-cells and fluids are capable, when properly stimulated, of counteracting the process or contributing to recovery by elaborating an antitoxin which is antidotal to the preëxisting toxin. The blood-serum of animals convalescent from a disease in which toxins and antitoxins have been produced contains substances of therapeutic value. The injection of these substances in the acute stages of these diseases will modify their progress, or in some instances, as we shall see, completely stay them. In tetanus, Tizzoni and Cattani have precipitated an antitoxin from the blood of dogs, rabbits, and horses, which has proved curative in many cases reported from the Innsbruck Surgical Clinic. The last report from the Pasteur Institute in Paris shows a mortality of less than one-fourth of one per cent. in rabies by the use of a substance which Pasteur extracts from the spinal cord of animals inoculated with this disease, and attenuates by drying. We have here a specific, as now conceded by all scientists, and practically an absolute cure.

But it was more especially with reference to diphtheria that I was to address my remarks upon *Serum-therapy*.

The bacillus of diphtheria was discovered by Klebs in 1883, and was obtained in pure culture and its pathogenesis demonstrated by Lœffler in 1884. I will not go into the morphology of the organism further than to direct your attention to the cultures in different media which I present for inspection. I have also stained preparations of the germ under microscopes. A peculiarity which is worthy of notice is the great irregularities in form, which exist commonly in the same culture-medium, but more especially in unfavorable media. The organism takes the Lœffler methylene-blue stain best. For sections, the modified Weigert double fibrin stain of picrocarmin is most effectual. This germ has no spore and is facultative anaerobic, but thrives best in presence of oxygen. The most favorable culture-medium for it is blood-serum with bouillon containing one per cent. each of peptone and grape-sugar. Upon potato the growth of the diphtheria-bacillus is entirely invisible or indicated only by a delicate glaze after the lapse of a number of days. Milk, even at a comparatively low temperature, 20° C., is a favorable medium for the growth of this organism, and we may infer that the latter fluid can act as the source of transmission of diphtheria.

The diphtheria-bacillus, unlike the typhoid and cholera bacteria, resists dryness for months, and it may be found in the throat and be capable of conveying diphtheria for three weeks after the onset of an attack of this disease. It is a very recently revealed fact that individuals may have this germ in their mouths and convey it to others, infecting them with diphtheria, without having the disease themselves. It was shown in discussion upon the subject at the recent Congress of American Physicians in Washington that contamination of the air by sewer gas is very potent in the occurrence of individual cases and the dissemination of diphtheria.

The thermal death-point of this bacillus is 58° C. In the vast majority of instances (it has been said always), the bacilli are only found at the point of inoculation, and the symptoms are often serious consequences; the paralyses, etc., are due to the absorption of the ptomaïn product which is one of the most deadly poisons that we know in either the mineral or vegetable kingdom. Recently a case has been observed in which the Klebs-Lœffler bacillus of diphtheria was found in the blood and in the viscera after death. The case was one of malignant type and occurred in a child in which the membrane had extended to the bronchi. The patient had been tracheotomized.

One-eighth of a cubic centimeter of an old alkaline bouillon-culture which has taken on greatly increased virulence will suffice to destroy a guinea-pig in a short time, when injected subcutaneously. The toxic potency of the diphtheria-ptomaïn is reduced by low temperatures and completely destroyed by boiling. This toxin may be precipitated from pure cultures by alcohol. It appears as a whitish substance soluble in water. One to two decigrams will destroy rabbits. The deadly poison causes local edema and necrosis.

More than a year ago, Brieger and Frænkel succeeded in rendering guinea-pigs immune to virulent cultures of the diphtheria-bacillus by attenuating the virus through age and exposure to heat. From sixty to seventy degrees was the temperature used, and this may be said to be the first reliable means to obtain immunity in animals to diphtheria. Later, a number of methods were employed, as the addition to the virulent cultures of chemical agents, such as iodin trichlorid, the virus being attenuated; and the use of the metabolites produced by the bacilli in the living organism, the animals to be immunized being treated with the juices from diphtheria-diseased animals.

A fourth method consisted in inoculating animals with the active virus and then counteracting the effect by therapeutic agents. The most reliable of the foregoing methods was the use of iodin trichlorid, but good results were obtained in a similar way by the employment of chlorid of gold and

sodium. Behring immunized guinea-pigs and rabbits by a preliminary course of treatment with hydrogen dioxid. A very effectual means of immunization is by injection of the attenuated toxin, and then gradually increasing doses of the non-modified toxin or pure cultures of the bacillus. Animals may thus be rendered highly refractory to tetanus as well as diphtheria.

It will be seen from the foregoing various methods that the keynote to immunity is the attenuation of the virus. The results are dependent, first, upon the occurrence of a reaction unlike that which follows the use of tuberculin, and, secondly, upon the absolute quantity of toxin employed. In entire absence of reaction no immunity follows, and the latter is more pronounced, the more severe, the more protracted the reaction. Behring rendered forty sheep refractory to diphtheria by successfully inoculating them with increasing doses of attenuated virus, until no elevation of temperature followed. Virulent living cultures or toxic media then introduced into the animals produced no effect. The immunity is the result of the development in the blood of an antitoxin which has the power of neutralizing the diphtheric virus. This blood may be withdrawn and utilized as a therapeutic agent in the prevention and cure of cases of diphtheria. An immunized sheep will, when 50 cc. of its serum are withdrawn every month, furnish two liters and a half per year, which, according to Behring's calculations, will suffice to immunize 5000 children or cure 200 when applied shortly after infection.

The duration of the immunity is in direct relation to the quantity of serum injected, and as stated with reference to pneumonia, the condition is transmitted from parent to offspring. The chemic composition of the diphtheric antitoxin, like similar products of the germs of other infectious diseases which have been isolated, is still not clearly understood, but its ability to prevent and remove the effects of the living bacilli in the organism is demonstrated by a large amount of animal-experimentation. The addition of 5 per cent. carbolic acid serves well for preserving the curative substance contained in blood-serum. It being an organic substance, it would naturally tend to decompose. The serum, which is the essential medium of the curative substance, is separated from the blood by coagulation.

As already stated a much less quantity is required to immunize than to cure an animal. This disproportion is vastly less marked, however, in the case of diphtheria than in tetanus, in which from one-thousand to one-million times more serum are required to effect a cure than to produce immunity. Intra-peritoneal is a more effectual means than subcutaneous administration, but harmless. For guinea-pigs the ratio of the curative serum required is to the body-weight as 1 : 1000, when treatment is begun immediately after infection, and 1 : 400 after the appearance of distinct symptoms. According to this rule a child weighing 20 kilos would require 50 c.c. of the serum at the beginning of the disease. The protective substance contained in the diphtheric serum is an absolute specific, *i. e.*, its action is confined exclusively to the diphtheria-germs and their products; it has no effect whatever upon other organisms, and does not influence the body either favorably or unfavorably when diphtheria is not present. Therefore the remedy stands unique among our therapeutic agents, and while capable of great good in the sphere of its usefulness it is harmless outside of this scope. It counteracts the diphtheric process effectively, and even if applied in an amount one-thousand times greater than necessary to produce the desired action it would simply offer a more safe protection or cure as the case might be. But such reckless extravagance in its use is not likely to be practised, for we shall see that the production of a sufficient quantity of this valuable agent is, for the present at least, going to be our chief difficulty. In fact the remedy is not available at all in our own country at the present time.

I have stated that the action of the protective substance in the blood-serum was confined exclusively to the diphtheria-bacillus and its products. We can, therefore, not reasonably expect to relieve to any great extent or cure cases of mixed infection. Such is the type often assumed in diphtheria after several days, and this undoubtedly accounts for the reported failures attending the use of the curative serum in certain cases. In one instance no diphtheria-bacilli could be found post-mortem at all, but only streptococci. In another patient that had been tracheotomized the diphtheria-bacilli were found in the blood and visceral organs, and the child had been sick three days before being admitted to the hospital. This was a case of the malignant type referred to.

We must make an exception for septic cases of diphtheria. I mean cases in which the sepsis is due to germs other than the Klebs-Lœffler bacillus; against such germs or their products the antitoxin of diphtheria is powerless. It is not a cure-all, as Behring states. Septicemia or secondary infection complicating diphtheria may be effectively treated by potassium chlorate or iodoform.

The experiments of Aronson in isolating the protective substance of diphtheria from the blood-serum may be briefly recorded. He succeeded by his particular method in concentrating the curative material contained in 10 grams of the serum into 8 grams of solid powder. This dry substance produced one-hundred times the effect of the serum. It is white, soluble in water, but more soluble in

dilute alcoholic solutions, which furnish all the reactions of the proteins. Dried in vacuo at 40° C., the substance may be heated to 102° or 103° C. without losing its active properties. The body does not possess chemotaxis. From ten to one-hundred-fold the immunizing dose of this substance is sufficient for a cure; the possibilities for successful therapy therefore are much greater than in the case of tetanus, in which the dose to cure an animal amounts to from 1000 to 1,000,000 times that necessary to immunize it. The serum which was used in the treatment of the first cases of diphtheria in Berlin was obtained by Behring from highly immunized sheep. Injections were made preferably into the anterior wall of the chest, in the back, or extremities, with a 10 c.c. Koch syringe. The dose administered at one time varies from 5 to 20 grams, according to the severity of the illness. One-thousand-and-eighty-one cases of diphtheria treated in the Kaiser Friedrich Children's Hospital in Berlin since its establishment, by the ordinary methods of treatment heretofore in vogue, gave a mortality-rate of 38.9 per cent. Some statistics furnish 50 per cent. as the average mortality of true diphtheria in children. One series of thirty-two cases is on record from one of the Berlin clinics, in which only eleven of the patients survived the disease, a mortality rate of 65.6 per cent. The treatment of diphtheria by use of the specific antitoxin has recently been carried on quite extensively in the various clinics of Berlin. Of seventy-two cases treated on the first two days of the disease by the antitoxin all but two recovered. Statistics of this same clinic regarding the treatment of seventy-two cases by methods previously employed, showed that twenty-five patients had died—accordingly a mortality of 34.7 per cent. One-hundred-and-twenty-eight cases treated by antitoxin in various stages of the disease at the Kaiser Friedrich Hospital gave a mortality-rate of 13.2 per cent. It has been stated that the remedy must be used very early to prove curative. It has no injurious effects upon the heart or kidneys, nor upon the system in any way, as shown by observation of one-hundred-and-twenty-eight cases treated by Dr. Katz.

Out of more than 250 cases treated in this way at different stages of the disease 100 per cent. recovered when the inoculations were made within the first twenty-four hours; when made on the second day 97 per cent. recovered; on the third day, 87 per cent.; on the fourth day, 76 per cent.; on the fifth day, 57 per cent. By use of the antitoxin the development of diphtheria may be prevented in persons that have been exposed to the disease, and immunity conferred upon them, so that they can go among epidemics with impunity. If cases can be seen, then, and recognized as diphtheria in the first twenty-four, thirty-six, or even forty-eight hours, we have in the use of the antitoxin practically a specific, and the mortality-rate in this dreadful disease can be reduced almost to a minimum. After the first day or two the value of the method grows progressively less. We have in this the imperative necessity for the recognition of the disease very early if we will make use of the curative serum soon to be placed at our disposal, and thus restrict the ravages of diphtheria. How can this early recognition best be promoted and made certain in large municipalities? Simply by aid of our municipal health-authorities, as has been done in the city of New York, which now stands out as an example to the whole world. This disease is essentially, and for a long time has been, under the supervision of our municipal health-authorities, but the supervision must now be extended to the aid of individual physicians in immediate proof of whether a suspected case is or is not one of diphtheria. The evidence referred to can readily be afforded by an examination of the deposit in the throat for the Klebs-Lœffler bacillus. This is our only *absolute* means of diagnosis in the very early stages of the disease, when recognition for therapeutic reasons is now very important.

Such bacteriologic examination for this bacillus cannot be made by practising physicians, nor will circumstances always permit of having the examination made privately. But if the health-departments of our cities will take the matter up (and this should interest them as the most available means of preventing epidemic extension of diphtheria) and furnish physicians with the bacteriologic proof as soon as possible after a case has been reported, then this heretofore dreaded malady can be made as harmless as almost any disease with which we have to deal. The way in which the work is conducted by the Health-Department of New York is briefly as follows: In that city there are forty stations, mostly drug-stores, at which physicians can obtain culture-outfits, so-called, which consist of small wooden boxes, five inches long, two inches wide, and half an inch thick. These boxes contain two thick test-tubes, in one of which is placed a wire wrapped at one end with a small pledget of cotton. This serves as a swab. The other tube contains a small quantity of culture-media, the composition of which has been described (Lœffler's diphtheric blood-serum.)

When a physician has a case of suspected diphtheria he obtains one of these outfits from the station in his vicinity. They are placed at his disposal, free of charge, by the Health Department. The swab is passed gently over the membrane in the throat by the physician in charge, and then conveyed to the tube containing the medium for inoculation.

The tube is enclosed in the box, wrapped in

cotton, and sent to the Department of Bacteriology, or is taken up by the collectors who go to the stations every day. At the laboratory the necessary bacteriologic examination is made, and in from twelve to fourteen hours the physician is mailed a report of the character of the case, or he may receive it at noon the day following by telephone. He knows then whether the patient is suffering from *true* or *false* diphtheria. The culture-test and microscopic examination of stained slides easily decide the question. It has been estimated that 95 per cent. of physicians having cases of diphtheria have made use of this method. Of 5611 cases examined in New York in twelve months 3255, or 58 per cent. only, were *true* diphtheria, and 1540, or 27 per cent., were false forms of the disease.

With the cure for diphtheria which we have now at hand, the importance of this system in cities for the early recognition of this disease cannot be too highly praised, for it has been stated that it is essentially upon the early application of the antitoxin that the success of the agent depends. Even Koch himself has commended the system inaugurated for the examination and control of cases of diphtheria by Dr. Biggs, in New York, and the Congress of British Hygienists, which recently met in London, lauded it, and made arrangements for its adoption in many of the cities of England, after the instructions and account given them by Dr. Biggs, who was present at the Congress.

From thirty to fifty per cent. of the cases taken to the Willard Parker Hospital, in New York, as true diphtheria were shown by bacteriologic examination to be pseudo-diphtheria, a disease which has a mortality of only about 2 per cent., is non-infectious, and does not require isolation or disinfection. It can readily be seen that it is an enormous saving to the Department of Health to have the cases rightly diagnosticated at the start. This saving much more than counterbalances the expense of the bacteriologic investigation.

To return to the treatment of diphtheria by the antitoxin; it will be some time before the remedy can be produced in sufficient quantity to be available for us. Large animals, such as the sheep and cow, first have to be immunized by being put through a course of treatment which requires from four to six months. Their blood can then be drawn in moderate quantities at regular intervals, without affecting them unpleasantly, and this, representing the antitoxin, is used for the treatment of cases of diphtheria. It requires skilled bacteriologists to immunize the animals, and then it would be well to have had a special course in the Koch Institute for Infectious Diseases. The remedy will necessarily be somewhat expensive, on account of the long time required for its production, the special methods demanded, and the skill on the part of the operator. It has been stated that the antitoxin will cost at the rate of a dollar a dose, although I believe this is placing it rather too high. However, its use for the treatment of poor people in large cities will only be possible when the agent can be provided by the health-authorities. In immunizing animals the quantity of diphtheria-cultures injected is sufficient to kill about 500 animals of the same kind.

The protective substance is contained in the milk as well as in the blood-serum of goats and sheep which are immunized. Goats have been found to be especially well adapted to the immunizing experiments, by reason of their susceptibility to diphtheria and the exceptional retention of the high degrees of immunity which experience has shown it possible to produce in them. The toxins of diphtheria and the antitoxin neutralize one another outside of the body as well as in the test-tube, as shown by the observations of Behring and Kitasato. The quantities of antitoxin contained in the milk of goats, sheep, and cows is far less than that found in the blood of these animals when immunized, although this milk when used in cases of diphtheria will decidedly modify the diphtheric process. Products of a cow which Kossel recently immunized in the Veterinary Institute at Berlin were used successfully in the cure of diphtheric children. Even though the specific action of the antitoxin is most marked in the very early stages of diphtheria, it modifies noticeably the character and severity of the disease in its more advanced stages, and lowers the mortality-rate. Wounds after tracheotomy heal favorably as a rule, and grave cases of laryngeal diphtheria have been cured. Almost always after an injection of the remedy the temperature promptly falls, the pulse is lowered in frequency and improves in volume; the character of the respirations is improved also. The indications for a repetition of the dose are the course of the temperature and pulse and the local appearances. I believe erroneous impressions may have arisen from the reports already issued on account of the lack of proper discrimination as to the character of the cases and the time in which the remedy was used. It has been shown that diphtheria often has septic complications from the very start. We cannot expect that these cases can be cured by the antitoxin, which is a *specific*. In some of the 220 cases reported by Ehrlich, Kossel, and Wassermann, the possibility of recovery was almost precluded by reason of the advancement of the disease. Necropsy showed extension of the exudate far into the smaller bronchi in some cases, and multiple hepatized areas in the lungs, induced by streptococci and a streptococcus infection of the blood.

In other cases which they treated they did not

have enough of the serum to make a showing which did justice to the remedy. In still other instances the fatal termination ensued from complications like nephritis and pneumonia. Thirty were patients that had been tracheotomized. Of sixteen that had been tracheotomized in one hospital in Berlin only four died after the use of this remedy. In twenty-six other cases treated in this, the Elizabeth Hospital, the course was most favorable in every instance, notwithstanding many unfavorable prognoses having been made from the beginning. In a large number of the 220 cases treated recovery without the use of such a remedy as this seemed almost impossible. Other patients could have been saved if sufficient serum had been obtainable to give several doses. It is thought that the frequent occurrence of paralysis may be lessened or prevented by the early employment of the antitoxin. Ehrlich, Kossel, and Wassermann say that of their serum 100 units should be used, and that in severe and tracheotomized cases 400 units should be administered. The treatment is repeated on the same day or on the day following, according to the character of the symptoms. From four hundred to 1000 or 1500 units may be administered in all. No results correspondingly favorable have ever been obtained in the treatment of diphtheria, notwithstanding the use of this remedy in many cases in the late stages. In the early stages experimental and clinical evidence shows the antitoxin to be curative.

It may be of interest to give some further account of the physical properties of the diphtheric antitoxic serum as *latest* produced. It is a clear, colorless liquid, thick in consistency, quite viscid, and has what is described as a "carbolic" odor. A proportion of 0.2 per cent. trikresol is efficient in preserving its organic composition, as well as the carbolic acid previously referred to. Two firms in Berlin are at present producing antitoxin. The one product is the "Behring Ehrlich Heilserum" and the other is Aronson's. The two remedies vary only in strength, and are both effectual.

Of the former there are also two preparations. No. II is two-and-a-half times stronger than No. I. The latter is used in mild cases in children under ten years of age. A high degree of immunization of animals is necessary for the production of the stronger serum; therefore a constant supply cannot be guaranteed at present. This remedy is a very effectual curative agent in severe cases of diphtheria at any age, and the dose is 1.15 cc., which represents about 150 antitoxin-normals. The dose of Behring and Ehrlich's form No. I is 1 cc., which is equal to 60 antitoxin-normals.

Gentle massage is always advisable after a hypodermatic injection, and this is practised when antitoxin is introduced hypodermatically. Abscess-formation resulted only once in two hundred injections made at the Kaiser and Kaiserin Friedrich Hospital, Berlin. The usual dose which Aronson administered is from 5 to 10 cc. Ten cc. may be given in a very severe case. Here, as always in making hypodermatic injections, the syringe should first be sterilized, and this is best done by submerging it for five (5) minutes in and injecting through it boiling water. An erythematous eruption sometimes appears after antitoxin treatment, which subsides after a few days. Patients with laryngeal stenosis often rapidly recover, and malignant cases begin promptly to improve after an injection. For maintaining immunity by antitoxin, injections had better be repeated after three or four months. Ten cc. or 60 of Behring's antitoxin-normals suffice for immunity or for prophylaxis. Fifty cc. may be given, and if repeated do no harm. Aronson's serum, made at Schering's factory in Berlin, is twice as strong as other products which he has tried. Five grams of Aronson's serum are equivalent to 500 grains of that which was originally used by him. Dr. Louis Fischer, of New York, who has just returned after a course of study with Prof. Baginsky and Dr. Aronson in Berlin, has treated with antitoxin one child that was suffering from diphtheria, which is I believe the first case reported in which the antitoxin has been used in this country. The diagnosis of diphtheria was demonstrated bacteriologically (which is the only *absolute* method) and the symptoms of the disease were pronounced. Five cc. of Aronson's serum were administered, and the next day a marked improvement was noticeable. On the third day the greenish membrane had entirely disappeared. On the fourth day no symptoms of the disease remained, and on the sixth day the child was entirely well. A transitory albuminuria disappeared under the treatment.

Recently Dr. Katz, of Berlin, inoculated with antitoxin 72 children that had been exposed to diphtheria, and only eight of these developed the disease. The latter cases were of very mild form. Of 130 children inoculated by Dr. Aronson in families in which diphtheria had occurred, only eight cases developed. Dr. Behring states that even at the present time the mortality of diphtheria under treatment by antitoxin may be safely placed at 5 per cent. As regards dosage and age, further, the following rule may be formulated: Under two years, during the first two or three days, 2 to 3 cc. are given; from two to ten years of age, 5 cc. are administered; over ten years of age, 10 cc. Aside from its marked curative effect this is an ideal method of treatment as regards simplicity; the troublesome spraying and swabbing of the diphtheric patient's throat, which are not unattended with danger, and the frequent internal administration of drugs are dispensed with.

On the theory that the change from toxin to antitoxin is a chemic one, Surinow has attempted to produce properties in the serum of diseased animals similar to those possessed by the blood of animals which are immunized. Electrolysis was used for the purpose. By oxidation or reduction there resulted the production of antitoxin, and the same effect followed the application of electrolysis to diphtheric bouillon-cultures. Some successful experiments are recorded from the use of antitoxins thus produced. If this method proves reliable it will greatly simplify our means of obtaining the valued antitoxin, which is now expensive on account of the great length of time required to immunize animals.

The French have not been slow to profit by the researches of their German brethren. M. Roux reports 448 cases of diphtheria in children treated by the new method at the Hôpital des Enfants Malades in Paris during a period of six months ending July 28, 1894. The improvement in the death-rate attributable to treatment with the new remedy was over 27 per cent.

We have every reason to believe that diphtheria will now be made a harmless disease, and that in the blood-serum of immune animals we have a more simple and reliable means for the vaccination of children against diphtheria than is offered even by vaccine-virus for the prevention of smallpox.

NERVOUS AND MENTAL SYMPTOMS OF LATENT AND INTERMITTENT NEPHRITIS WITHOUT ALBUMINURIA.[1]

By LUDWIG BREMER, M.D.,
of St. Louis, Mo.

For years I have in my neurologic and psychiatric practice met with cases presenting localized or general troubles, whose origin and nature seemed to be obscure, and whose connection with renal lesions became apparent on examination of the urine, although the albuminuria, generally considered essential, was absent. A typical example may stand for quite a number of cases that have come under my observation in the course of years.

Several years ago I was called upon to examine into the mental condition of a gentleman past sixty, who had rather suddenly developed symptoms of mental aberration. After a few days of indefinite malaise he astonished his family by the assertion that he had seen a negro climb up a tree that stands in front of his house and peep through the window into his room. There were other statements of a similar absurd character, which he made with the positiveness of matters of fact. When I saw him, he conversed fluently and, as it seemed, rationally on ordinary everyday topics, but I found that he had lost his bearings as to time and space. Although in his own sleeping-room, he had a vague notion that he was away from home, and, to the great alarm of his family, he was uncertain about the season of the year, not to speak of the day of the week or the time of the day, of which he had completely lost all track.

Remembering several cases of nephritis in which the same mental phenomena had presented themselves, I made, after excluding alcoholism, a preliminary diagnosis of uremic intoxication. That this loss of the conception of time and space is a common symptom in alcoholic insanity, especially in some forms of alcoholic imbecility is, I think, a fact well known by all psychiaters of average experience.[1]

The urine was found to contain no albumin; its specific gravity was 1026; its color dark-brown; hyaline and granular casts were present in moderate amount. The man had had two attacks of Asiatic cholera—one in 1849, the other in 1866, which left him in an enfeebled condition from which he had never recovered. A diagnosis of chronic parenchymatous nephritis had been made by a physician in Germany, while the patient was in that country in search of health, ten years previously. Since then he seemed to have gotten along so well that this diagnosis had been forgotten by the family until revived by me.

The patient recovered completely, and although he has had several slight relapses, manifesting themselves chiefly as lumbago, great lassitude, sleeplessness, and intestinal disturbances, he is now practically well. I have no doubt that the disease dates back at least twenty-eight years—*i. e.*, to his second attack of cholera.

I gave a favorable prognosis, based on the outcome of a case that I had seen in consultation several years before, and in which, relying too much on what the microscope had taught me, I had given a very unfavorable opinion as to the outlook for the patient's life.

In this case there had been, after a few days of ailing, and a spasticity in the calves of the legs (a not unusual premonitory symptom of uremia), a

[1] Read before the Missouri State Medical Association, May 16, 1894, at Lebanon, Mo.

[1] The mild uremic delirium bears a close resemblance to the chronic alcoholic variety. There is the same blandness and suavity of manner, the quiet, rational conversation, which misleads the patient's friends, who pay him a flying visit, into the belief and assertion that there is nothing the matter with his mind. The whole picture, however, is changed as soon as the patient, in the midst of rational talk, makes the assertion, for instance, that he saw Mr. X. down town yesterday, when, as a matter of fact, he has been at his house for a month, or when he avers that to-morrow he will start for home.

fainting-spell, from which the patient awoke in a dazed condition. For two weeks the man did not recognize his friends or his surroundings. Apoplexy had been thought of by the attending physician. The presence of albumin in the urine had not been detected during the whole course of the disease; the amount of urine was about two-thirds of the normal, whilst the quantity of urea excreted during the twenty-four hours was fully up to the standard. There were present cylindroids, hyaline, granular, and epithelial casts, many leukocytes, and a varying amount of uric acid. There was no history of renal or vascular disturbance, and no dropsy.

In spite of my evil prognosis, this man recovered completely, and is to-day in possession of all his mental and physical faculties, although for months a slow and deliberative manner of speech and a sluggishness of the thinking-process was noticeable. Great and prolonged mental strain, the abuse of whiskey, and excessive card-playing at night were probably the exciting causes of this attack.

I have encountered the same microscopic findings, often including numerous leukocytes, the absence of albumin, dropsy and vascular disturbance, often a high specific gravity of the urine (up to 1030 and more) in quite a number of cases, presenting the most heterogeneous symptoms, and, at first sight, suggesting absolutely no renal affection. Edema was present in only one.

I will cite the case of a lady who, after a short period of catarrh of the trachea and bronchi and stomach, accompanied by intense headache, became suddenly partially aphasic. She was not only unable to give utterance to her thoughts, but she could not catch the meaning of what was said to her. There were illusions, hallucinations, as well as megalopsia, everything appearing to her unnaturally large. She has now recovered her mental faculties. Several days ago, almost a year after her aphasic attack, I examined her urine again. Instead of presenting a high specific gravity, casts and leukocytes, and an absence of albumin, I found a low specific gravity (1014), no casts, but the presence of albumin, a complete change from the former finding, with the disease no doubt still persisting. An attack of influenza occurring several years previously was probably the cause of the nephritis.

The same infection seemed to be at the bottom of what appeared like an obscure neurosis in a child of two-and-a-half years old. This patient had an attack of influenza when six months old. After an interval of over a year of apparent good health some gastric symptoms developed; at the same time she began to lose the use of her legs, which were extremely sensitive to touch. She could lie only in one position, on the right side, with the legs slightly adducted. Very large quantities of uric acid and almost every variety of casts, excepting blood and waxy casts were found in the urine, but no albumin. This is the only case of this class under my observation in which edema appeared. No marked improvement had taken place after three months of treatment.

Sometimes a trauma is responsible for the renal disease. I have seen a case of rapidly-developing tabes accompanied by parenchymatous nephritis following a fall from the second story on the nates. The patient died from the degenerative process of the posterior tracts spreading rapidly to the medulla oblongata. There were, post-mortem, the characteristic lesions of the posterior spinal tracts in connection with acute parenchymatous nephritis. In this case only slight traces of albumin could be demonstrated in the urine.

On the other hand, albumin was absent in another case that I saw in consultation a few weeks ago, in which mental dulness, hesitancy of speech, and general confusion were the predominant symptoms. The patient is forty-five years of age. When he recovered his senses he remembered that he had slipped whilst stepping on a banana-peel about a week before the head-symptoms set in, and that with a tremendous effort, and by going through a number of complicated movements, he succeeded in maintaining his equilibrium. A friend, who witnessed the occurrence, expressed his fears at the time that such an unnatural effort was bound to be followed by evil consequences. In this case the disease existed probably in a dormant state before the accident. The man was apparently healthy all his life.

I have seen two cases in which recovery took place that mimicked typhoid fever, with brown tongue, slow pulse, and great somnolence, apathy and mental obtundity. The non-existence of an epidemic of typhoid fever at the time constitutes negative evidence, while the presence of casts in the urine establishes the diagnosis.

Numbness of the hands and fingers, indisposition to work, a sense of pressure in the head, slow pulse, below 60, catarrhal conditions of the respiratory or digestive tract, rheumatic pains, neurasthenic symptoms, melancholia, and mania may be the clinical manifestations of nephritis.

In one case, in a woman of fifty, whose urine presented the characteristics already detailed, a facial neuralgia of a severe type, and lasting with slight intermissions and remissions for months, disappeared suddenly on the supervention of a maniacal attack. When this ceased, after a duration of two days, the neuralgia reappeared. At one epoch of the disease the neuralgia would alternate with attacks of profuse diarrhea, the diarrhea probably carrying off the toxic substances causing the neuralgia.

In quite a number of cases of the kind under

consideration I found rudimentary indications of the symptoms, such as impairment of the conception of time and space, sometimes coupled with a feeling of tension in all the muscles. This muscular spasticity is, I believe, one of the earliest symptoms of uremia. I have seen it in several cases of hydronephrosis due to stricture, prostatic enlargement and distention of the seminal vesicles. Such patients complain of impairment of memory and confusion of dates. Events that took place years ago appear as of recent date.

The prognosis in all of these cases of parenchymatous nephritis is not unfavorable. Quite the reverse, of course, obtains in cases of contracted kidney. Here, as a rule, the vascular and urinary symptoms are plain and readily made out. But in this form of nephritis latency or intermittence may deceive even the best diagnostician. The peculiar features of heart and pulse may be absent. Among a number of cases that have come under my observation I shall cite only one, a rather celebrated case in St. Louis insurance-circles. It was that of a physician, who, while riding in his buggy after nightfall, was, under mysterious circumstances, struck in the head by two small bullets. An operation for the extraction of the missiles, which had not penetrated the skull, was performed under chloroform, but the man died a couple of days later. Suicide by shooting and arsenical poisoning was talked of. The man had carried life-insurance of $80,000—much beyond his means—and most of the policies had been but recently issued. The kidneys were in an advanced state of chronic interstitial inflammation, with an enormous number of glomeruli obliterated. There were also a great many collapsed uriniferous tubules with thickened walls, characteristic of secondary shrinking in the course of chronic parenchymatous nephritis. The kidneys were a little smaller in size than normal.

The man had been strange and peculiar in his manner and actions for a year and more, and had been running from one insurance-office to another. The remarkable feature about his insurance-mania was that the beneficiary was a person (his wife) whom he detested. My conclusion was that this specimen of an insurance-crank suffered from uremic insanity (melancholia) when he applied so assiduously and extensively for insurance; that he had then a cirrhotic kidney, and that, being a nephritic, he died from the effects of the chloroform. The companies had to pay. He had passed the examinations of all the physicians. One, a diagnostician of great ability, found his urine normal, but advised the company against accepting him, on account of his mental symptoms. In spite of this they issued a policy of $10,000.

That arterio-capillary nephritis in an advanced state may exist in apparently strong and healthy men, in a latent state, occasioning no symptoms, until by hardship and exposure during a hunting or a fishing trip, for instance, the slumbering inflammatory process is relit and leads to a rapidly fatal result, was recently demonstrated by the death (from cirrhosis of the kidney) of the wealthiest man in this part of the country, who was of athletic muscular development and apparently in the best of health a short time before his death.

I cannot say anything special or new on the treatment of the class of cases considered in the foregoing remarks. It is, however, worthy of mention that elaterium or elaterin given so as to produce watery stools, alternated with mercurial mass, has generally the effect of clearing up the sensorium of nephritic patients presenting mental symptoms. The rest of the treatment is that generally adopted by the profession. Dr. Stewart[1] relates that he has given thyroid extract with good effect. I think this agent worth trying, and am at present employing it in a case in point, apparently with benefit. I doubt, however, if experience warrants the creation of a third form of chronic (non-albuminous) nephritis closely resembling neither the parenchymatous nor the interstitial variety. It is improbable that an anatomic substratum of a definite character and distinct from the two recognized varieties is underlying the cases here treated of. It is well-known that in some cases it is very difficult, if not impossible, to make an anatomic diagnosis in a case of chronically inflamed kidney, the epithelial and connective-tissue elements being equally involved, or nearly so. Again, the clinical symptoms may change from those of one form to those of another (generally from those attending the chronic parenchymatous to those of the cirrhotic kidney), as was observed in the case related in which aphasic symptoms appeared. Probably we have to look for conditions similar to those found in the kidneys of the physician referred to. A plausible explanation of the absence of albumin does not exist.

The presence of the normal amount of urea in the cases presenting uremic symptoms points to a cause other than the retention of urea. Brown-Séquard's theory of an internal renal secretion whose admixture with the blood is as necessary as is that of the thyroid gland to the healthy function of the nervous system seems not impossible.

The most remarkable feature about the uremic disturbances are their localizing tendencies, attacking either the brain and the special convolutions of that organ (aphasia, localized paralysis) or the spinal cord, a peripheral nerve, etc. This, however, is

[1] "Further Remarks on the Occurrence of a Form of Non-albuminous Nephritis other than Typical Fibroid Kidney." THE MEDICAL NEWS, April 14, 1894.

not without analogy in toxic diseases (poisoning by lead, mercury, strychnin, etc.).

I have encountered three cases of a third form of non-albuminuric nephritis, alternating with diabetes and likewise producing a variety of incongruous and inexplainable nervous and mental phenomena, localized or general, and similar to those already described. The pathology of this condition is still more difficult of comprehension than is that of the cases alluded to. The cases linger for years, have many ups and downs, and, as far as I know, never recover.

CLINICAL MEMORANDA.

ACCOUCHEMENT FORCÉ: REPORT OF A CASE.

BY JOHN G. CECIL, B.S., M.D.,
PROFESSOR OF OBSTETRICS, KENTUCKY SCHOOL OF MEDICINE, LOUISVILLE, KY.

ON the morning of April 2, 1894, I was called by Dr. Atwood Smith to see a patient in consultation. Arriving about 9.30 A.M., I obtained the following history: Mrs. T., aged twenty-two, the wife of a policeman, had been left by her husband about 10 P.M., April 1st, in her usual health, that is, not complaining more than she had been for the preceding two or three weeks. For several weeks her feet and legs had been swollen; she had not suffered or complained of headaches, disturbances of digestion, or vision; there was not much swelling about the face or hands.

Her husband returning from his watch at seven o'clock on the morning of the 2d, knocked, but receiving no response finally forced the door, and found his wife undressed and in bed entirely unconscious. Not being able to arouse her, he at once sent for Dr. Smith. The Doctor sent for counsel, and during the intervening time observed her in three or four convulsions. He at once commenced the administration of chloroform by inhalation during and at intervals between the convulsions, and gave drop-doses of croton-oil in emulsion. Upon examination I found her in labored respiration—about twenty to the minute—the pulse 72, full, round, and hard; the temperature normal, the eyes staring, at times partially closed, the pupils not responsive to light; the feet and legs considerably swollen, some puffiness about the eyelids, restless, rolling from side to side and tossing her limbs about. She had been vomiting and purging. Digital examination revealed the vagina soft and dilatable, covered with abundant secretion, the cervix shortened but firm, the os admitting the examining finger.

She was within six weeks of the expected completion of her term of gestation, and from the periodic restlessness we thought it probable that she was having labor-pains, though little impression was being made on the cervix. The bag of waters was unbroken, and the presenting head could be felt, but it was not engaged. Fetal heart-sounds were heard in both hypochondriac regions, but more distinctly on the left. The uterus was large and irregular in outline.

The diagnosis of multiple pregnancy, owing to the urgency of the condition, was not made out at this time, as it undoubtedly might have been easily done had more care been bestowed upon it. In consultation we determined to control the convulsions with chloroform; to prevent recurrence by hourly doses of fifteen grains of chloral hydrate by the mouth, or thirty grains by the rectum; to continue efforts at purgation by the croton-oil, and to let the labor for the time take care of itself. During the next four hours she received six drops of croton-oil, which did not produce purgation until five or six hours later; also one hundred and twenty grains of chloral per rectum. Notwithstanding this and the administration of chloroform, she had two violent convulsions, the last one being especially severe.

I saw her again at 1.30 P.M., and, Dr. Smith concurring, determined to deliver as rapidly as possible. Accordingly, she was placed in position, a vaginal douche given, put completely under the influence of chloroform, the urine drawn (which proved to be heavily laden with albumin), and cervical dilatation was begun with the fingers. Proceeding slowly, half of the hand, thoroughly cleansed and well oiled, was introduced into the vagina, and one finger into the os externum. In a few minutes a second finger was squeezed in alongside of the first. Then, at short intervals, the third and fourth fingers were inserted, and the four fingers, bunched into a cone, were used as the dilating wedge. The fingers were pushed as high as the presenting part would allow, care being taken not to rupture the amniotic sac; they were then made to oppose each other, the index and sometimes the middle finger being hooked into the cervical ring, pulling it gently in different directions, the other fingers opposing. The cervical ring was thick and strong, and offered not a little resistance. The manipulations were continued for about forty minutes, when I had secured considerable thinning out of the cervix and a dilatation of from one-and-one-half to one-and-three-quarter inches. The head was now engaging, and the waters unbroken. I now had the choice between version (which might not have been an easy undertaking in view of the subsequent discovery of twins) and an effort to apply the forceps. Knowing the dangers incident to the delivery of a living child by the breech in a primipara under the most favorable surroundings, I determined to make an effort to apply the forceps; in the event of failure, I still had the alternative of version. Accordingly, the bag of waters was ruptured, and a small head in the right occipito-posterior position became partially engaged at the superior straight. The forceps was adjusted with some difficulty, the cervix being tightly stretched like a rubber band around the blades when they were locked. I now felt that I had control of the situation, and even though a laceration of the cervix should occur, I would be justified in bringing the labor to a speedy termination. Intermittent tractions at intervals of two minutes were made very gently, and I soon had the satisfaction of seeing the cervical fibers dilate and retract over the forceps-blades and the descending head. The delivery was soon accomplished. The head being very small and the pelvis roomy, the former never rotated, but was delivered with the face looking to the symphysis. The child, weighing about five pounds, was in a state of congestive asphyxia. The cord was cut without ligature, and a small amount of blood permitted to escape; the infant was then quickly resuscitated.

When this child was delivered it was at once ob-

served that a second remained unborn, which presented by the head, in the left occipito-anterior position. It descended to the pelvic cavity in a little while, but the contractions being insufficient, the forceps was applied and delivery accomplished in a few minutes. The second child resisted efforts at resuscitation for a long while, but we were finally successful; though larger than the first, it was weaker, and was asphyxiated from a probable partially premature separation of the placenta. A single after-birth with the two cords attached was promptly delivered, and a firm uterine contraction followed.

The time consumed from the commencement of the dilatation to the complete delivery was about two hours, and we had the satisfaction of having two living children, the mother still alive and in a better situation for the future to the credit of *accouchement forcé*. Owing to the small size of the fetal heads, notwithstanding the unfavorable position of the first, the perineum was preserved entire, and if there was any cervical laceration, it was insignificant. There was no recurrence of convulsions during the delivery. The mother was now allowed to come out from under the influence of chloroform, and a close watch was instituted. In an hour or so she began to purge freely; the kidneys also secreted six or eight ounces of urine.

I saw her again four hours afterward and found her breathing sixty-five times per minute; the pulse, 90; the temperature, 102° F.; very restless, still unconscious, somewhat cyanosed, coarse mucous râles being heard over every part of both lungs. This condition, evidently one of acute edema, had come on suddenly, about three-and-one-half hours subsequent to the delivery. Mustard-plasters were freely applied to the chest in front and behind, a rectal injection of half an ounce of whiskey and fifteen grains of ammonium carbonate given, followed shortly after by the hypodermatic injection of morphin one-fourth grain and atropin $\frac{1}{150}$ grain. This brought relief, and she passed a reasonably quiet night.

At eight o'clock the next morning, April 3d, she awoke to partial consciousness, and had a single slight convulsion; thirty grains of chloral by the rectum, and morphin and atropin were given. The edematous condition of the lungs still persisted; the temperature was 101° F., and the pulse varying from 120 to 150 beats per minute. Later in the morning the morphin and atropin were repeated, and $\frac{1}{100}$ grain digitalin given hypodermatically. At four o'clock in the afternoon the woman had become semiconscious, the pupils responding promptly; the pulse was 120—better in volume and strength; she recognized her friends and was able to swallow teaspoonfuls of water, doses of whiskey, and ammonium carbonate. I directed that morphin and digitalis be continued during the night *pro re nata*.

The temperature for the next two days was exceedingly erratic, varying from normal, or nearly so, to 105° F., making at times very rapid excursions, but the daily average became gradually higher toward the end, fluctuating from 103° to 105° F. The condition of the lungs never materially improved, the coarse mucous râles persisting. I am inclined to think a condition identical with, or certainly very similar to, catarrhal pneumonia developed in the right lung. The urinary secretion from the time of delivery was satisfactory in quantity, showing daily improvement in the amount of albumin. The patient died early on the morning of the 6th, or about four-and-one-half days after delivery, clearly from the pulmonary complication, there being at no time evidence of septic infection. It is probable that the edema was induced by intra-cranial interference with the functions of the pneumogastric nerve.

No. 731 Fourth Avenue.

AN UNDESCRIBED HEART-MURMUR.

By J. N. HALL, M.D.,
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In quite an extended search in the literature of diseases of the heart I have been unable to find any note of a murmur such as is here described.

Mrs. C., a widow, thirty-two years of age, a housewife, has borne four children and has had two miscarriages, the last being only a month ago. Ten years ago she had an attack of acute rheumatism confining her to bed for five months. She has had several slight attacks since. She lost considerable blood at the last miscarriage, and is rather anemic. Upon August 6th, when I first saw her, the cardiac area was enlarged to the mammillary line, the apex-beat under the nipple, in the fifth space, and the cardiac action decidedly feeble. An apical systolic murmur, propagated to the mid-axillary line was heard, with accentuation of the pulmonary second sound. There was moderate edema of the feet, and marked dyspnea; the respirations were fifty per minute while sitting in the chair, the pulse 90, and feeble. No pulmonary edema was found.

I exhibited the patient at the clinic as an example of mitral regurgitation, in spite of the fact that the murmur was not propagated to the back. The feeble action of the heart seemed to me sufficiently to account for this, while the lack of such transmission was in my mind more than counterbalanced by the presence of edema and particularly the marked dyspnea, especially upon the slightest exertion. In fact, I take decided exception to the dictum of Cammann and others, that it is necessary to hear a mitral murmur in the back before deciding that it indicates regurgitation. I believe I have seen several examples that were exceptions to this rule.

The woman was given iron and a laxative, and returned on August 29th. Her condition was then about the same, excepting that the anemia was a little improved, and the murmur followed the first sound and the apex-beat, instead of being synchronous with them as before. The cardiac action was still so feeble that digitalis was prescribed, and a few days later the patient was re-examined.

The edema of the feet at that time had practically disappeared. The pulse was 70, and of much better strength. The apex-beat was easily visible and palpable. The murmur followed the first sound, and the visible beat, and was transmitted to the mid-axillary line. The respirations reached 50 per minute five minutes after slowly ascending a short flight of stairs. The basic second sound came just at the termination of the murmur, but at the apex was obscured by it. The case was exhibited to many students, and to Drs. McLauthlin, Lobingier, and Hopkins, of the University of Colorado. There was no room for disagreement as to the facts, viz., that

the apex-beat and first sound, with a distinct movement imparted to the stethoscope, all preceded the murmur. The only explanation of this state of affairs which I can conceive, is as follows:

The mitral valve was incompetent, and regurgitation occurred through it, giving rise to the murmur, as is usual in such cases. The right ventricle, somewhat hypertrophied, gave rise to the apex-beat and a normal first sound, and displaced the stethoscope firmly applied to the apex region, forming the first element in a reduplication of the first sound of the heart. The second part of the reduplication was made by the left ventricle, but instead of a distinct heart-sound a mitral murmur was heard, owing to the regurgitation through the mitral valve. I believe this explanation sufficiently accounts for all the phenomena observed.

Barr has reported a somewhat similar case in which the left ventricle contracted first, with a mitral murmur, and was followed by the normal contraction of the right ventricle. Sansom reports a case in which, over the ventricles "a murmur tailed off from the second reduplicatory sound," at the apex only the murmer being distinguishable. The case later developed a presystolic murmur, and the reduplication disappeared, which would appear to confirm his explanation that it was due to a presystolic flap of the mitral valve. It obviously differs from the case we are considering.

George Johnson believed that reduplication occurs from the contraction first of the hypertrophied auricle, followed by that of the ventricle. It is not reasonable, I think, to suppose that the auricle could possibly cause the distinct apex-beat, even if it could cause the sound. Sansom has stated, nevertheless, that in certain cases of mitral stenosis the auricle may cause a distinct impulse. There has been, I believe, no evidence of mitral stenosis in this case, and I consider it opposed to Johnson's theory.

Hayden believed that the reduplication occurred from a resolution of the first sound into a muscular sound and a valvular element, the latter occurring after the former. It seems to be conclusively proved that the valve closes early in systole, however, and I certainly fail to see any bearing upon the present case. Potain's theory that reduplication is generally only apparent, being in reality due to a presystolic flapping of the mitral valve in association with a normal first sound, evidently would not apply here, as the apex-beat accompanied the first sound.

I hope to be able to follow the case, and shall note any further developments.

THREE UNUSUAL CASES OF ABSCESS.

By M. A. VEEDER, M.D.,
of Lyons, N. Y.

I have had three cases of abscess recently that are somewhat interesting. The first, which pointed just above the sternum and was buried deeply in the muscles of the neck, was very refractory to treatment, until it was found that its cause was inflammation in the pulp-cavity of a tooth near the angle of the jaw, the pus from which had found an outlet on the inside of the jaw-bone, and had worked its way down between the muscles of the neck until it came to the surface, as I have described. The patient had not suffered from toothache, and did not suspect that this was the source of the trouble, although when the tooth was pulled fluid could be made to pass through the sinus, and healing was very prompt thereafter.

In the next case the patient gave an account of having frozen his chin about three years previously, since which time it had been reddened, and at times would break open and discharge pus. He had never had any trouble with his teeth, which were even and regular, and apparently free from any trace whatever of caries. Nevertheless the probe entered a cavity in the bone at the tip of the chin in the direction of one of the lower incisors, which on inspection was found to present the peculiar opaque appearance which exists when the nerve is dead. He was taken to a dentist, and a hole was drilled into the side of the tooth, the center of which was found to be the seat of a cavity having its outlet below, and through which a disinfecting fluid could be readily passed into the sinus opening at the tip of the chin. This cavity was thoroughly cleansed by the repeated application of hydrogen dioxid and of pure carbolic acid and drilling, whereupon the pus-discharge ceased, and the tooth which had been the cause of the trouble was saved.

Another case was of precisely similar character, except that the opening was on the side of the chin opposite the anterior bicuspid tooth. Although the patient had not had the slightest pain in his teeth, when it was suggested that this might be the trouble he went to a dentist and had the posterior bicuspid tooth pulled because it contained a filling and the other did not. This did not remedy the trouble, and some months afterward he sacrificed the other tooth, which resulted in immediate cure. The better plan would have been to have looked for symptoms of the death of the nerve of the tooth, and to have had an opening drilled into the pulp-cavity as previously described, which would have resulted, with proper filling, in remedying the trouble and likewise saving the tooth. It has seemed to me that this class of cases might very readily be overlooked, particularly in the earlier stages, because of the insignificance of the pain referable to the teeth.

HOSPITAL NOTE.

ABDOMINAL ANEURYSM.

By JOHN ALDEN LICHTY, M.D.,
resident physician in the Philadelphia Hospital.

Mrs. M. D., seventy three years of age, a widow, born in Ireland, was admitted to the Philadelphia Hospital, in Dr. Salinger's wards, September 5, 1894. The woman said that she had always been well, had worked hard all her life, was the mother of ten children and had had four miscarriages. She had used alcohol, and to excess, especially within the last few years. For the past ten years she has suffered with dizziness. Within that time a small tumor appeared in the region of the thyreoid gland. For three or four years she has had pain in the epigastric and cardiac regions. This, according to her statement, has shifted gradually toward the right. It is paroxysmal, not increased after eating, and shoots toward the back. The pain in the back has been especially severe within the last few months. About a month

before admission she noticed a pulsation on the right side and above the umbilicus. This she thought was due to her heart, and when asked why she came to the hospital, she said because her "heart was dislocated." She is a tall, slender woman, and looks emaciated, but says she has never been robust. The palpebral fissures are small, and there is a marked arcus senilis. The pupils are unequal, the right being smaller than the left, as the result of an injury to the eye some years ago. Both pupils respond to light and accommodate to distance. The woman's voice is high-pitched and harsh. Examination of the larynx by Dr. Seltzer showed the vocal bands to be normal. The larynx is unusually small.

A small tumor about the size of a walnut is found in the region of the thyreoid gland, more prominent on the left side than on the right. It is very hard, nodular, does not pulsate, and moves with the larynx in deglutition. The left external jugular vein is much distended immediately above the clavicle. The lungs are normal. Cardiac dulness is normal in extent. At the apex a rough sound is heard with the systole. It is not transmitted. At the aortic cartilage the second sound is highly accentuated. The radial pulses are equal. The arteries are very much thickened.

The abdomen is very flaccid. On the right side of the median line and just above the umbilicus, an induration is felt. It is about the size of a lemon, smooth, very tender upon pressure, has an expansile pulsation synchronous with the heart-beat, and extends to the median line. No thrill is felt, but a bruit is heard at the base of the tumor near the situation of the abdominal aorta. The position of this tumor does not change upon putting the patient in the knee-elbow posture. The femoral arteries are very much thickened, but a sphygmographic tracing shows no difference between the pulsations of the two. Marked tenderness is found about the spines of the twelfth dorsal and first lumbar vertebræ, and at this same point a bruit is heard.

From these symptoms and signs a diagnosis of aneurysm of the abdominal aorta was made. The condition could easily be differentiated from a pulsating abdominal aorta by the presence of a tumor, and from other abdominal tumors by the presence of the expansile pulsation and the bruit.

The patient is kept in bed, is on a dry diet, and is given larger doses of potassium iodid. Aside from the pain in the back, she is comfortable.

As is well-known, aneurysms of the abdominal aorta are rare. Crisp, in his elaborate statistics of 551 cases of aortic aneurysms, found only 59 of the abdominal aorta. Many cases reported are found on the autopsy-table to have been only instances of pulsating aortas. But in the foregoing case, in which the abdomen is so flaccid and the tumor can be so easily palpated, there cannot be a doubt of the existence of an aneurysm.

MEDICAL PROGRESS.

Prostatic Hypertrophy Successfully Treated by Castration. —Meyer and Haenel (*Centrabl. fur die Krankheiten der Harn- und Sexual-Organe*, Bd. v, Heft vii, 1894, p. 329) have reported the case of a man, seventy years old, previously in good health, who suffered with marked prostatic hypertrophy, complicated by ammoniacal cystitis. The prostate was palpable through the rectum as a smooth, homogeneous, hard mass about as large as an adult fist. Lobulation was not appreciable. In the presence of alarming symptoms and in the failure of the usual palliative measures, castration was proposed as the final resort, and both testicles were removed. Recovery from the operation ensued without complication. In the course of a week a slight decrease in the size of the prostate could be determined. In the course of another week the organ had lost a third of its former size, while five weeks later still it had lost an additional third. Three weeks after this the gland was reduced to almost its normal size. The distressing symptoms also began to subside within a few days after the operation, and with the aid of antiseptic irrigation of the bladder a satisfactory condition was soon restored, the propulsive force of the bladder progressively increasing. Hand-in-hand with the improvement in the local condition the general state became better, and in a short time the patient was restored to comparative health.

Among the advantages of the operation of castration for the relief of prostatic hypertrophy are pointed out its facility of performance, its almost entire freedom from danger, and the likelihood of success.

Mansell-Moullin (*The Medical Press and Circular*, No. 2889, p. 285.) reports the case of a man, eighty-one years old, who for a number of years had been troubled with occasional retention of urine, relieved by catheter with more or less difficulty and returning after an interval of a month or two. When he came under observation the bladder was greatly distended, and a catheter could not be introduced. Through the rectum the prostate was found to be much enlarged, smooth and hard. The bladder was aspirated above the pubes, and a large quantity of urine neutral in reaction and containing a considerable amount of pus was removed. On the following day small amounts of urine were passed at frequent intervals. The condition continued thus for about two weeks, subsequently growing progressively worse. It was impossible to introduce a catheter. The amount of pus in the urine increased, the cystitis became more aggravated and the patient's strength began to fail. The prostatic growth was now as large as a Tangerine orange. It was considered that a suprapubic prostatectomy involved to much risk. The chance of success if a suprapubic urethra were formed or a perineal drain were inserted was considered better, but in view of the patient's years the prospect was felt not to be a good one. Accordingly, castration was proposed and agreed to. The operation was performed with but slight shock and without rise of temperature. The wound upon the one side healed at once; that upon the other became infected and suppurated a little. From the day after the operation the urine passed more freely. On examination ten days later the prostate, felt through the rectum, was much smaller. Three weeks after the operation it had simply disappeared. An ordinary silver catheter entered without the necessity of more than the usual depression, and when the finger was introduced into the rectum all that could be felt was a fusiform thickening along the catheter not sufficiently large or dense to prevent the shaft being felt distinctly along the entire length. The bladder was beginning to regain power and the urine had become acid.

Gumma of the Parotid Gland.—MANDOWSKY (*Sonderabdruck aus der Aerztliche Praktiker*, No. 32, 1894) has reported the case of a woman, twenty-three years old, who for some time had observed a hard swelling below the lobule of the right ear, in the neighborhood of the parotid. It was related that a glandular swelling had been present in the same situation nine years before, but this had been removed. Subsequently a new swelling appeared which, for a long time, slowly increased in size, but recently had grown more rapidly. The tumor was somewhat larger than a pigeon's egg in size and firm in consistence. It appeared to be adherent to the surrounding structures, and was not movable upon the subjacent tissues. It felt elastic, as if surrounded by a firm capsule. Immediately beneath it was a second, smaller mass, about as large as a bean. Although the general condition of the patient appeared good, and there was no history of eczema or other chronic inflammation, the impression made was that of a tuberculous lymphatic gland. At the patient's request the tumor was extirpated. It was found to lie between the origin of the sterno-mastoid muscle and the ascending branch of the lower jaw, immediately beneath the ear. It was adherent to the surrounding structures, particularly to the parotid gland, from which it could not be separated, so that it was necessary to remove a portion of the gland. In addition to the main tumor, some nine or ten smaller glands were also removed. The subsequent course of the case was uncomplicated.

Macroscopically the large tumor presented the appearance of a fibro-sarcoma. Histologically it proved to be a gumma, which it is believed was of hereditary origin.

THERAPEUTIC NOTES.

Infiltration Anesthesia.—An interesting series of experiments, the results of which have been corroborated by many subsequent observations in practice during a period of over three years, appear to demonstrate the greater effectiveness of intra-cutaneous, over subcutaneous, injection of the anesthetizing fluid in the production of local anesthesia. The principle of infiltration-anesthesia, as briefly stated by SCHLEICH, the originator of the method (*Therapeutische Monatshefte*, 1894, No. 9), is thorough infiltration of the entire field of operation with an indifferent fluid, which need not be an anesthetic. The needle is introduced beneath the papillary layer, and in a direction parallel to the surface of the skin. The injection is followed in a few minutes by the appearance of a white, anesthetic wheal. The foreign fluid fills the tissue-spaces, and forces out the blood and tissue-juices, and is most effective at a temperature of zero, Celsus. The anesthesia of the area of induced edema is said to depend on the pressure of the infiltrating fluid, on the temperature, and on the anemia of the tissues. Intra-cutaneous injection of distilled water, of 2 per cent. solution of sodium chlorid, of 3 per cent. solution of sugar or 0.02 per cent. solution of cocaïn, will produce complete local anesthesia. A 1 per cent. solution of morphin, a 3 per cent. solution of potassium bromid, a 1 per cent. solution of methyl-violet, a 2 per cent. solution of caffeïn, will have the same effect, and this will be enhanced if these substances are dissolved in 2 per cent. solution of sodium chlorid.

Among the operations done under local anesthesia by this method are mentioned uncomplicated celiotomy, amputation of the mammæ, removal of the axillary glands, nephrotomy, herniotomy. removal of sequestra, besides many minor operations.

In the following formulæ the morphin or codeïn is added for the relief of the pain subsequent to the operation; the second agent named also diminishes considerably the necessary dose of cocaïn, which is added to render the injection painless, and so facilitate its application. Without the cocaïn, the induced edema is quite painful for a minute or more, when complete anesthesia follows.

I.

R.—Cocaïnæ hydrochlorat. . . . 0 2
Morphin. hydrochlorat. . . . 0.025
Sodii chlorid. sterilisat. . . . 0.2
Aq. dest. (sterilisat.) ad . . . 100.0—M.
Adde acid. carbol. (5 per cent.) gtt 2.
S.—Strong solution.

II.

R.—Cocaïnæ hydrochlorat. . . . 0 01
Morphin. hydrochlorat. . . . 0.005
Sodii chlorid. sterilisat. . . . 0.2
Aq. dest. (sterilisat.) ad . . . 100.0—M.
Adde acid. carbol. (5 per cent.) gtt. 2.
S.—Weak solution.

The strong solution may be diluted three times with normal salt-solution without losing its efficacy. Undiluted, it is used in the treatment of inflammation, suppuration, or neuralgia. In an operation requiring much time, the weak and strong solutions are used alternately.

The syringe is sterilized by means of a 5 per cent. solution of carbolic acid and absolute alcohol in equal parts, and the pain incident to the first prick of the needle is obviated by the use of the ether or ethyl-chlorid spray.

The advantages of this method of producing local anesthesia are its perfect safety (as large quantities can be injected before the maximum dose of cocain is reached) and the complete insensibility that can be induced and maintained in the entire field of operation.

To Relieve the Thirst of Diabetics pilocarpin may be administered in solution or in pill-form. The pills are best prepared by the addition of glycerin and gum arabic. Each contains gr. $\frac{1}{60}$ of pilocarpin nitrate.

For the solution the following formula is given:

R.—Pilocarpin. nitrat. . . . . gr. ½.
Spirit. vini dilut. . . . . ♏xx.
Aquæ . . . . . ʒj.—M.

S.—The tongue is to be moistened with 5 or 6 drops of this solution four or five times daily.—*Nouv. Remèdes*, No. 11; *Corr.-bl. für Schw. Aerzte*, 1894, No. 18.

For the Night sweats of Pulmonary Tuberculosis.—

R.—Ext. secal. cornuti . . . 3.0.
Spirit. dilut. }
Glycerini } āā . . . 5.0.—M.
Aquæ dest. }

S. For subcutaneous injection: 1 c. centimeter at bedtime.—GOLDENBACH, *Deutsche med. Wochenschr.*, 1894, No. 26; *Therap. Monatsh.*, 1894, No. 9.

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, OCTOBER 20, 1894.

PERIODIC PALSY.

THERE have been reported within the last decade a small number of cases of obscure nature characterized by the occurrence of transitory and recurrent palsy, and for which it has not been possible to lay down a well-defined pathology. Among the earliest of these is one detailed by WESTPHAL,[1] which occurred in a boy twelve years old, who for a period of four or five years had attacks of paralysis of all four extremities, occurring at first every four or five weeks, and subsequently several times weekly, and lasting for from twenty-four to thirty-six hours. The paralysis was attended with loss of electric irritability of the affected muscles, diminution of reflex irritability, increased thirst, and free perspiration. Sometimes pain was present, and, as a rule, paresthesiæ were noted.

A case recorded by GOLDFLAM[2] occurred in a young man seventeen years old, who for three years presented attacks of generalized paralysis, lasting at first for three days, later for two days, and finally for but one day, and recurring at intervals of varying duration. Eleven other members of the maternal branch of the family were said to suffer similarly. Males and females were almost equally attacked. The transmission was not continuous and direct, a generation sometimes escaping and the disease appearing in members of a succeeding generation. The frequency of the attacks varied considerably among the individual members of the family, although greater in youth than in advanced life.

BURR[1] has reported the case of a man, thirty years old, who for ten years suffered from attacks in which he was awakened from sleep by a sense of soreness in the muscles of the arms and legs, and on attempting to move found that he was unable to do so on account of weakness. Consciousness was undisturbed, sensibility was not deranged, and the function of the sphincters was maintained. The attacks lasted from a day to a week and recurred about once in four months, though latterly with greater frequency. Recovery from the attack took place gradually in the course of a few days. BURR further cites a case detailed by SCHACHNOWITSCH[2] occurring in a man, forty-four years old, who was subject to attacks of periodic paralysis, which always set in during sleep, and involved the arms and legs, without sensory derangement, but with a subjective sense of stiffness, lasting from three to twelve hours and recurring with varying frequency. Consciousness remained unaffected. It was learned that the patient's father had suffered similarly.

COUSOT[3] has recorded the case of a mother and four of eight children who presented periodic paralysis. There have also been reported a number of cases of periodic palsy of quotidian or tertian or of irregular type, in which the causative factor was believed to be malarial, but quite without adequate evidence. Only in the report of GOLDFLAM is it stated that examination of the blood was made, and in this instance hematozoa were not found.

The most recent of this interesting group of cases is reported by HIRSCH.[4] The patient was a man, twenty-six years old, who, about once a year for a period of six or seven years, was, without obvious cause or exciting influence, seized with a sense of heaviness and fatigue in the extremities, finally progressing to actual paralysis, lasting for about twenty-four hours and suddenly disappearing. The reflexes were abolished, but sensibility was unaffected. During the continuance of the condition there was increased thirst. There was also increased cardiac

[1] Berliner klinische Wochenschrift, 1885, Nos. 31 and 32.

[2] Wiener medicinische Presse, 1890, Nos. 36–39.

[1] University Medical Magazine, August, 1893, p. 836.

[2] Vratch, No. 32, p. 537; London Medical Record, 1884.

[3] Revue de Médecine, 1887, vol. vii, p. 190.

[4] Deutsche medicinische Wochenschrift, 1894, No. 32, p. 646.

activity, and a systolic murmur was heard at the apex of the heart, together with accentuation of the pulmonary second sound. After the seizure the man was as well as before. The patient himself was not neurotic, but it was related that his mother had suffered similarly. In both the facial muscles escaped involvement.

Virtually nothing is known as to the intimate nature and etiology of the disorder here considered, and in the absence of definite knowledge hypothesis has had free play. WESTPHAL thought there might be a sudden disturbance of the nutrition of the muscles or of the muscle nerve-endings as a result of peripheral circulatory derangement. COUSOT sought to locate the lesion in the spinal cord, assuming the existence of a transitory inhibitory influence upon the spinal centers. GOLDFLAM suggested the presence in the body of a virus of unknown nature exerting a toxic influence upon the muscles and motor nervous fibers, and, as a matter of fact, demonstrated an augmentation of the urotoxic coefficient in relation with the occurrence of a paroxysm. From a prognostic point of view the affection is not known to shorten life. Therapeutically there is no specific remedy, and each case must be treated in accordance with its individual features.

An additional interest is given these cases when placed side by side with the affection described by THOMSEN and known by his name, and also as congenital myotonia, and that recently described by RICH.[1] In the first of these latter conditions stiffness of the muscles ensues on attempted movement following a period of rest, and in the second a similar rigidity results on exposure to cold, in both instances with interference with mobility.

In a personal communication PROF. BERNHARDT, of Berlin, calls our attention to a family form of congenital myotonia traceable through six generations described by EULENBERG,[2] and a case of intermittent congenital myotonia reported by MARTIUS and HANSEMANN.[3] In the twenty-eight persons affected by the condition described by EULENBURG exposure even to a slight degree of cold induced transient tonic spasm of the muscles of the face and neck and the muscles of deglutition, so that, for instance, the act of vision or of speech was rendered difficult or was interfered with; in the muscles of the lower and upper extremities the condition of spasm yielded to a state of palsy lasting from a few hours to half a day. Warmth relieved an existing attack and aborted an impending one. Faradic and, in greater degree, galvanic muscular irritability was diminished, the response to galvanism being unduly protracted. The affection differed from Thomsen's disease in an absence of increased mechanical irritability of the muscles. The condition was believed to be a spastic angio-neurosis, dependent upon reflex contraction of the vessels supplying the muscles, as a result of the irritation induced by exposure to cold.

The case of MARTIUS and HANSEMANN was characterized by a sense of weakness in the upper extremities following exposure to cold, or rather sudden lowering of temperature. During the summer the patient remained free from attacks for months at a time. Sudden exposure to cold, however, such as a cold bath, at all times led to an attack. In winter the attack would be repeated daily and usually in the morning, either on arising or going out of doors. It set in with a sense of progressive weakness, even before there was objective interference with motility. Ultimately the fingers became fixed in the clawed position. Passive motion, however, was still possible. The patient was, on vigorous effort, able to close the hand, but was unable at once to reopen it. The spasm relaxed in the course of a few seconds and the patient was again able to extend the fingers. Energetic innervation of the biceps brachii was also attended with prolonged tonic contraction beyond the period of voluntary stimulation. Sometimes the muscles of the face and of mastication displayed similar peculiarities. Only on one occasion, after putting the feet in cold water, was there any stiffness of the lower extremities.

The mechanical irritability of the motor nerves was diminished, that of the muscles tardy and characterized by protracted contraction. The response of the muscles to strong faradic currents was slow, tonic, and persistent; induction-opening sometimes induced only short, lightning-like contractions. Galvanic irritability of the nerves was normal and all of the contractions were brief. The muscles displayed increased galvanic irritability,

[1] MEDICAL NEWS, August 25, 1894, p. 210.

[2] Neurologisches Centralblatt, 1886, No. 12; Jahresbericht über die Leistungen und Fortschritte in der gesammten Medicin, xxi. Jahrgang, Bd. ii, p. 164.

[3] Archiv fur pathologische Anatomie und Physiologie und für klinische Medicin, Bd. 117, Folge xi, Bd. vii, p. 587; Jahresber. über die Leist. u. Fortschr. in der ges. Med., xxiv. Jahrg., Bd. ii, p. 76.

with qualitative change; all contractions were slow, with tonic and protracted wave-like elevations and depressions formed at the point of application of the electrode. In the intervals between the attacks the patient was free from all outward abnormal manifestations.

Histologic examination of a portion of one of the affected muscles showed the primitive bundles to be twice the normal thickness, pursuing an undulating course, with the transverse striation in places indistinct. The nuclei of the muscle-fibers were also increased in number, were wider than normal, and were arranged in long rows. The father, the grandmother, the great-grandfather, numerous uncles, an aunt, and other members of the family suffered similarly to the patient, the disease usually appearing in early childhood.

Although on first thought the several conditions here referred to would appear to be widely divergent, future investigation may disclose a more intimate relation among them, the same structures suffering in all—in the one instance, however, with the development of a flaccid or atonic state of the muscles affected, while in the other a spastic state results. All present in common a family distribution and hereditary transmission.

SMALL HOSPITALS.

A LITTLE book on the *Establishment and Maintenance of Small Hospitals*, by A. WORCESTER, A.M., M.D., has lately been published by JOHN WILEY & SONS, New York. It was written to aid in the now widespread movement for the establishment of small hospitals in all centers large enough to support them. After discussing the advantages of the small hospital, the means to be taken to awaken an interest in the movement in any community are stated; the necessary hospital-organization is explained; the medical question is fully discussed, and the necessity (as it is believed) shown of having all the leading schools of medicine represented on the hospital staff. This is done by naming leading physicians of each "school," who are, however, designated simply as physicians, the "regular" physicians serving in turn, the homeopathic members of the staff being in attendance whenever called for by patients.

The necessity of a training-school is shown, and DR. WOODWARD recommends that this be an entirely separate institution from the hospital. For this we see no good reason, and the valid objection that it imposes upon a small community the necessity of maintaining two establishments, when only one is necessary, seems sufficient to overthrow his plan.

DR. WORCESTER takes the stand that the hospital should provide for all needful cases of contagious disease, and this he recommends should be done in a detached cottage-ward. It has been the rule at hospitals to reject all patients suffering from contagious diseases, but this is no longer defensible in communities in which there are no special hospitals for these diseases. The greatest need is often in these very cases, in which, unless removed to a hospital for isolation, the disease may spread through a whole family.

The closing pages of the book are devoted to "Suggestions for Hospital Architecture, with Plans for a Small Hospital," by WILLIAM ATKINSON, architect. The book is commended to all who contemplate the establishment of a hospital in any community in which none now exists.

It may be profitable to refer here to the success which is attending the efforts to establish small hospitals, and to illustrate this by referring to the hospital opened a little more than a year ago at West Chester, Pennsylvania. The building and lot cost $20,000. There are twenty beds in the wards, and private rooms for patients. The cost of maintenance is $250 per month. During the first year 169 patients were received, who spent on the average sixteen days in the institution. During the year, the hospital received $22,000 as an endowment-fund, which is now invested at 5 per cent., and a collection taken for it in the Catholic Church yielded over $700. A school for nurses has been established and is in successful operation. It is in charge of a committee of the Board of Managers.

The field which it is the aim of this hospital to occupy is the whole county in which it is situated. The county-seat being in communication with all portions of the county by railroad, patients can be quickly and safely conveyed to it. An ambulance is also employed to bring in patients from the surrounding country.

To work up and maintain an interest in the hospital and to secure funds and supplies *Ladies' Auxiliary Societies* have been established at numerous places throughout the county. These societies receive annual subscriptions and donations. Some of the churches in the district have taken up collections

for the hospital, others have not. Such small county-hospitals, properly managed, and escaping the evils which have beset larger institutions, should be able to accomplish great good, if in no other way, in avoiding the congestion of city-hospitals, a large part of which is due to the custom of the counties supplying many patients who in one way or another find their way to the city. But all care should be exercised in founding, in framing rules, and in the administration of these and of all hospitals, that dependency is not encouraged, that those who are able to pay shall not be treated without payment, both the profession and the public being thus injured.

EDITORIAL COMMENTS.

An Appeal to the Pity and Better Natures of the Editors and Publishers of The British Medical Journal and The Lancet.—You know, gentlemen, that the paper upon which is printed the "foreign edition" of your otherwise splendid journals, is simply inexpressibly vile. It is at once thicker, and yet more mushy and rotten than tissue-paper, and is, therefore, properly fit for no purpose whatsoever—absolutely none—of civilized or unregenerate man. We can only explain its use on the ground of a contempt of us, the reason for which dates back to Revolutionary times, or perhaps to Simian ages. You certainly would not, and could not, treat a resident of the British Islands thus. We beg of you to remember that, however remote the relationship, we are at least your Teutonic brethren, and that it is your duty to help on the cause of Anglo-Saxon civilization. Please do not forget that even an American can sometimes grumble, and even revolt, after prolonged indignity and injustice. We appeal to your compassion and to your sense of justice: In the name of your contributors, who write to be read of all men, not only of Englishmen; in the name of your foreign subscribers, who have paid for knowledge, not soiled paper; in the name of your typesetters and printers, whose good work is spoiled by your bad paper; in the name of your self-interest, as there are untold thousands of Americans waiting to subscribe when they shall be able to read what you and your contributors have written; in the name of medicine, whose cause you represent, but traitorously, because you spoil good eyes and brains by the unnecessary labor you thrust upon us; in the name of art, as the illustrations in the foreign editions of your journals become subjects of mirth to all outlandish men; in the name of human ethics and good character, because you are sadly wrecking both, and tremendously increasing the work of the future writer of a cursory history of swearing; and lastly, in the name of pure commiseration of your brother editors who, willy-nilly, are compelled to look through your columns to glean from them a knowledge of medical thought and progress. Misericordia! Misericordia!

State Examinations and Licenses to Practice.—A correspondent complains of the non-issue of the formal license to practice, and indulges in general criticism of the conduct of the Pennsylvania Board. Concerning the non-issue of the formal license, it will be proper to apply directly to the Attorney-General of the State. The law, we believe, does not prescribe any printed or written form, and a license to each successful applicant might be issued by proclamation or by simple notice to each person. On the question of the value of strict examinations and the establishment of a State Supervising Board, it may be said that all experienced teachers admit that ability to answer set questions is not a test of talent or genius. Those who carry off college honors are by no means always those who are the most distinguished in after life. It is true that many able physicians have been educated under the wretched system common in the United States up to a recent period, but it is also true that hosts of unfit men were allowed to enter the profession and a degradation of the standard of the schools brought about which is the main factor in retarding reform. To attempt to regulate by legislative methods the scope of instruction in medical schools would lead to dispute and confusion. The utmost that can be accomplished at present is to exercise the wholesome influence that arises from the fact that each college faculty knows that its graduates will be subject to a public competition with graduates of every other college. Moreover, if Pennsylvania were to establish a system of college supervision the graduates of other States could not be excluded except by some uniform test like that of a State examination, so that nothing would be gained over the present method by the additional machinery.

Actual Experience in Filtration.—We take from a recent report of a joint commission designated by various civic and scientific organizations in Allegheny County, Pa., an interesting description of the performance of sand filters at Poughkeepsie, N. Y. These were built upon the European model in 1865, and have been in use over twenty years. They furnish 3,000,000 gallons per day. Since 1876 the beds have been used continually except during the winter of 1881, when the cold weather interfered. This difficulty has now been overcome, and they can be operated at all seasons. All the city supply is filtered, and the inhabitants have become very exacting, insisting on the continuous use of the filters. For brief periods in the year a peculiar turbidity appears which the filter does not remove. The lower courses of broken stone and gravel have never been disturbed since the filter was built, and the sand has also been in continuous use, having been several times removed, washed, and replaced. Chemic and bacteriologic analyses are always satisfactory. In November, 1891, Drown found 1161 points of microbic life in 1 c.c. of the applied water and 62 points in the effluent, a reduction of 95 per cent. In 1892 the reduction was 82 per cent.

Cruelty Among the Hindus.—Hari Kali Sen, himself a Hindu, in a recent number of the *Indian Medical Record* (Vol. vii, No 5, p. 136) details a form of refined cruelty practised among the higher castes of Hindus under the guise of a religious observance and known as Akadashi, which compels widows, infant or mature, healthy or sick, weak or strong, to observe on the eleventh day succeeding each full moon and new moon a fast lasting for twenty-four

hours, during which not so much as a drop of water is permitted to pass their lips. Sometimes a widow is placed in an empty room and kept under lock and key for the time of her fast. Marriage takes place early among Hindu girls, even at the age of seven or eight. The male Hindu is not only entitled to polygamy during his first wife's lifetime but after her decease he may also marry as often as he pleases. On the other hand a Hindu widow of even six or eight or ten years of age, instead of being permitted to marry again, is forced to life-long torture, from which there is no release but death or prostitution.

The Polk Site for the Asylum for Feeble-minded in Western Pennsylvania.—Serious objection has been raised to the selection of Polk as the site for the contemplated asylum for feeble-minded in Western Pennsylvania, on the basis of its great distance from Pittsburg as representing the center of population of that section of the State. Not only will this separation increase the expense of travel of patients and friends, but it will also preclude the possibility of obtaining the strongest corps of visiting physicians, a desideratum, the importance of which has been recognized and illustrated in recent changes made in the medical staff of the Institution for Feeble-minded Children, at Elwyn, near Media, and not far from Philadelphia. There are many reasons why the new institution should be situated near Pittsburg. The energetic protest of the medical profession against the selection of the Polk site should not go unheeded.

The Vitality of Diphtheria-Bacilli in False Membrane.—We have on several occasions pointed out for how long periods convalescents from diphtheria may be a source of infection, and wish here only to refer to a report made by Abel (*Deutsche medicinische Wochenschrift*, 1894, No. 35, p. 692), detailing the case of a girl, twelve years old, in which an attack of faucial diphtheria was, after apparent recovery, followed by the development of fibrinous rhinitis in the membranes, in which virulent diphtheria-bacilli were found as late as sixty-five days after the onset of the primary illness. This observation and others emphasize the caution to be observed in permitting convalescents from diphtheria to associate with others, and seem to show that the false membrane of diphtheria, as well as that of fibrinous rhinitis due to the activity of diphtheria-bacilli, constitutes a specially favorable medium for the preservation of these organisms.

Price No Guarantee of Excellence.—A few days ago a sample of hydrogen dioxid of English manufacture was analyzed in comparison with a well-known American brand. Four ounces of the English preparation cost one dollar, while the same quantity of American article costs about thirty cents. The results are interesting:

	Volumes of O.	Degree of acidity.
English	5.6	36.0
American	10.0	2.4

A sample of an American article which was ten volumes in strength in February last, and had been standing on the laboratory-table all summer, was found to have been reduced to eight volumes, showing, therefore, excellent keeping qualities.

An Antiseptic Suggestion.—A contributor to The News, Dr. Francis L. Haynes, notes that in examining the neat and doubtless thoroughly sterilized packages of surgical dressings now kept in drug-stores, the physician is frequently startled to see the druggist open the packages and handle their contents with soiled fingers, thus rendering the material unfit for surgical purposes. He offers the suggestion that manufacturers carefully seal all packages of surgical dressings (and, we would add, permit the sale only of unbroken packages), and that physicians refuse to accept any materials the purity of which is not thus guaranteed.

Effect of Filtration of Water-Supply.—The beneficial effects of filtration seem to be strikingly shown by the experience of Girard College, Philadelphia. This is located in the district which has been for some years supplied by direct pumpage—that is, the Schuylkill water is thrown directly into the pipes. The typhoid death-rate for 1893 was quite high in that district, although apart from the bad water the sanitary conditions are very favorable. At Girard College, however, there is but little of the fever in a population of over 1500. All the water supplied to the institution is thoroughly filtered.

SELECTION.

PAY WARDS AT THE GREAT NORTHERN HOSPITAL.

We read in a lay contemporary: "The authorities of the Great Northern Central Hospital announce that on October 1st they will open their pay wards to the public. Particular care will be taken to restrict the benefits of this important branch of the charity to the most suitable and deserving cases. *The medical staff have undertaken to attend the patients gratuitously on the same conditions as the patients in the free wards.*" (The italics are ours.) This seems very strange. The persons then who make use of these wards are to pay for everything except medical attendance. It certainly looks like playing the medical profession a little lower down even than usual. These patients might just as well go to a cheap hotel and pay for their room, their food, and their nursing, but refuse to pay their doctor. We have an idea, however, that it may be a kind of sop to the general practitioners of the neighborhood, who, if they lifted up their voices in protest at pay wards, would be told: at any rate the medical attendance is not paid for. Yet it seems to us in these days of competition and low fees amongst general practitioners that persons who can afford to go into a pay ward at a hospital, even though the medical attendance is gratis, could all the more afford to stay at home and pay the general practitioner his fees, which, as time goes on, get smaller and gradually less. Pay wards at general hospitals should be on the same basis as private hospitals for important operations. But in all cases the medical attendant should have his fees exactly as if the case were that of an ordinary private patient.—*Med. Press and Circular.*

CORRESPONDENCE.

THE JOHNSTON EMERGENCY HOSPITAL AT MILWAUKEE.

To the Editor of THE MEDICAL NEWS,

SIR: Something over six years ago the institution styled "The Johnston Emergency Hospital" opened its doors for the reception of patients. The first conception of the idea occurred to Dr. A. B. Farnham, Harv. A.B. 1867, and Bellevue M.D.

Previous to its foundation a number of lives had been lost from the delay in "first attendance," and much inconvenience had been experienced by the police in not having satisfactory quarters for wounded and sick criminals. There were many hospitals in and about the city, but they were far from the center of possible accidents, and their rules and regulations did not permit them to take all persons that might apply. Dr. Farnham was aided in his efforts by the members of the medical society, then called "The Bartlett Clinical Club," now known as "The Milwaukee Medical Society."

By hard work $1500 were collected. Some of the leading men of the city were chosen as directors. An abandoned police-station was renovated, disinfected, and rendered habitable if not aseptic. A graduate from the "Training School for Nurses" of the Cook County Hospital, Chicago, was selected as matron of the institution, and a pupil-nurse from the Wisconsin Training School for Nurses as her assistant. Trusting in the maxim, "The Lord will provide," the doors were opened, and since that time it has done more good than any other institution in the city. The first year was a struggle we well remember. We would meet Farnham with tears in his eyes and the information that there was not coal enough for a day, and this in midwinter, with the thermometer at 0°. Then we learned how to beg, and with a good cause behind us we did beg. During the first year much good that the public could see was accomplished. At one time fifteen firemen who had been engulfed in a burning building were kindly attended to. These acts of mercy gained the hearts of the Common Council, so that at the end of the first year the institution became a city one, with a fair appropriation, and governed by a board of directors appointed by the mayor, who in their turn appointed the visiting staff.

The old place was retained, and, notwithstanding the surroundings, much good work was done. Two years ago, while a cellar was being dug for a new building on the north side, the wall bulged outward, carrying away beds, etc., with a portion of the building. A meeting of the staff was called, and a resolution was sent to Common Council, asking for a new building. The "many-headed hydra" arose, and enemies to advancement wished to close its doors; other hospitals that had formerly refused the admission of such patients, now, in the hour of distress, offered to aid without recompense. While consulting as to where we should build or rent, one of our best philanthropic citizens, John Johnston, banker, arose and presented the city with a $25,000 lot, in the heart of the manufacturing portion of the city and contiguous to the great Union Railway Station.

No position could have been more advantageous, no gift more timely. The gift of the lot was received, but the erection of the building was delayed until the time left for its completion by the condition incorporated in the deed had been nearly spent. Then the Council bestirred itself. Plans for a thoroughly fireproof building, in which all the modern practical as well as theoretic hospital-improvements were incorporated, were placed before the Trustees and Common Council for consideration; one of these was selected, and the work went on.

To-day, six months after the breaking of ground, we take pride in drawing the attention of the medical profession of the world to this "house of mercy" and this monument to the beneficence of a noble man. It will be known as "The Johnston Emergency Hospital." In years to come, long after all of us who have assisted at its birth shall be resting in our narrow house, the name of Johnston will still be read over its door, and the poor man, by accident a sufferer, will bless his name as a public benefactor.

The hospital is built on Sycamore Street between Third and Fourth. The Fourth Ward Park is immediately in front. On the east side runs a twenty-foot alley, which gives ample room for the ambulance to drive in, turn, and back into the recess at the side, between the two sections of the building. The gates are then closed, and the patient can then be taken from the ambulance into the elevator without the "gaping curious crowd" encumbering the way. The building is fifty feet by one-hundred-and-thirty feet, leaving twenty feet of space in the rear for a stable, wherein to keep the ambulance, which will be erected in due time.

The cost of erection has been $51,000. The front is built with Bedford limestone, combined on the second story with Roman brick, and on the third-story roof with Akron tile. The remaining walls are of Milwaukee brick. The building is thoroughly fireproof. The plan of construction is perfect throughout. Much praise must be given to John A. Moller, the architect, for the artistic and useful building he has added to our beautiful city. Each department is so arranged that it can at any time be shut off from the rest of the building. The four executive rooms on the first floor are separated from the rest of the hospital by glass doors. The ward for suspected infected cases has its own entrance on the side, and cannot be entered from the hospital proper. All cases are taken in from the ambulance at the side door to an elevator which, being raised to the second floor, gives the choice of conveying the patient directly either to the sunstroke-room, the preparation-room for operating, the female ward, or the obstetric ward, which is so constructed that it may be closed from the rest of the building. The kitchen and housekeeping apartments are in the basement and on the first floor.

The second floor back is taken up with the operating-room, preparation-room, and sunstroke-room. The resident physician has his apartments on the first floor and the attendants are across the hall. The dispensary is situated on the second floor, in the center of the building, and has electric connection with every room in the hospital. The janitor has his apartments in the front of the basement. Seclusion-rooms are provided for both male and female patients. The plumbing is perfect, there being a toilet-room to every set of apartments throughout the building. The operating-room has eight windows on two sides, and is lighted from

above by a skylight over the whole ceiling. A number of rooms have asphalt floors. The operating-room is of Georgia pine, filled, and oiled.

The ventilating and heating system is that of the Sturtevant Company of Boston, and governed by the Johnston Electric Service of Milwaukee for regulating the degree of heat. By experiment it has been found that the air can be changed throughout the building every ten minutes. The third floor is as yet unfinished, but can be utilized in case of a severe disaster, and can accommodate one-hundred beds. As the city increases in size this floor can be finished and used as a retention-ward.

I have described these plans in detail, as I think they are worthy of merit, and may be of service to other cities whose officials are thinking of constructing a similar institution. The hospital is furnished as perfectly as it is constructed, and nothing is wanted to render the institution a model throughout.

The hospital has a Board of Trustees appointed by the Mayor, eight of whom are physicians. Besides the regular business, they appoint the staff on its own recommendation. The Trustees are: Louis Frank, M.D., President; A. E. Smith, Secretary; S. W. French, M.D.; F. E. Walbridge, M.D.; John R. McDill, M.D.; Horace M. Brown, M.D.; J. S. O'Brien, M.D.; A. J. Burgess, M.D.; Walter Kempster, M.D. (Com. of Health).

The staff is composed of twelve physicians and twelve surgeons, three obstetricians, two ophthalmologists, five railroad surgeons, and eight members of the consulting staff.

I offer this article to the readers of The Medical News with a pardonable pride, to show that the city of my adoption has contributed her portion to suffering humanity. Yours fraternally,

Samuel W. French.

Milwaukee, Wis., October, 1894.
1216 Grand Avenue.

THE BUBONIC PLAGUE IN SOUTH CHINA.

To the Editor of The Medical News,

Sir: The bubonic plague began in Canton and Hong Kong in February or March, but it did not come under the notice of foreigners until April or May. I landed in Hong Kong on the 15th of May and found the city in a state of excitement on account of the plague. The Colonial Government was inaugurating measures to combat the epidemic, and thousands of people were leaving the city.

In Canton the mortality was alarming, and the inhabitants were escaping to the country in large numbers.

The disease had been prevailing for several years in the southwestern part of the Canton province, and had come under the notice of medical missionaries, by one of whom it was described in the *Customs Medical Reports*. It gradually extended up the coast and, as already stated, reached Hong Kong and Canton in the early part of the year.

In Canton it first appeared in the eastern part of the city; then in the central part, and it gradually extended to the western suburbs. Cases have occurred in almost every part of the city, and in some localities the fatality has been great.

There is no notice taken of deaths, even in an epidemic, by the authorities of Chinese cities, and, of course, no statistics of mortality exist. The estimates of the number of deaths vary from 20,000 to 100,000, and even higher.

The disease is a malignant fever, running its course in violent cases in two or three days, but often continuing for four or five days, before the fatal termination occurs. If the patient passes the fifth day without dangerous complications there is hope of recovery.

The diagnostic symptom of the plague is a painful glandular swelling, either in the groin or axilla or neck. This usually appears on about the second or third day, or it may be earlier or later. In some cases the patient may die before the swelling takes place.

The fever varies in intensity, and may not be over 103° at first in cases which terminate fatally, but usually it gets up to 105° before the end. In some cases under our care intermissions have occurred, giving hope of recovery, but the fatal issue occurred on the following day.

Hemorrhage from the mouth and nose is occasionally observed, and the disintegration of the blood, with extravasation into the skin, has given rise to the term black plague or black death.

The presence of fever in association with the glandular swellings makes the diagnosis easy when an epidemic is prevailing, but this cannot be positive until the glandular swellings appear or the case is violent and rapid in its course.

The prognosis is uncertain, but it is unfavorable when the disease is epidemic, even in cases which seem mild. When the patient survives till the fifth day the disease may go on steadily to a fatal termination, but if the fever decreases and there are no brain-complications a favorable result may be hoped for.

A Japanese physician, Dr. Kitasato, has the credit of having discovered the bacillus of the plague. He was a pupil of Dr. Koch, at Berlin, and was sent to Hong Kong by the Japanese Government to study the epidemic. Unsanitary conditions are supposed to favor the development and dispersion of the bacilli, and most favorable fields for its propagation existed both in Hong Kong and Canton. But in the former place the most stringent measures were adopted by the Government, under the direction of the ablest physicians, to isolate the cases and limit the disease. In Canton nothing whatever was done by the Government either to isolate cases or to remove unsanitary conditions. If statistics could be had, it would be interesting to compare the results in the two places, but no means of comparison exist.

It is to be stated, however, that the epidemic ran its course *pari passu* in the two cities, and declined and disappeared at the same time in both.

The pathologic changes produced by the disease are yet for the most part to be studied. Locally, the glandular system is involved, and morbid changes in the blood are manifest, and in many cases a semi-comatose condition indicates that there are changes in the brain. The physicians in Hong Kong who gave special attention to the study of the disease will no doubt publish the results of their investigations. Post-mortem examinations cannot be made in Canton.

The most important element in the treatment is to

remove patients from the crowded unsanitary localities and dwellings where they are attacked. Temporary hospitals were opened in Hong Kong and Canton, where fresh air was abundant and proper attention could be given by trained nurses. Plague-patients brought to the Medical Missionary Society's Hospital were placed in boats anchored in the river, but we lacked the important element of trained nurses. In the native hospitals (large mat sheds) the ventilation was all that could be desired, but the nursing was deficient.

In regard to medical treatment, the rapid progress of the disease gave little room for testing the value of any method.

We treated the fever on general principles, using some antiseptic internally. Because of the depressing influence of the poison, antipyretics had to be used with caution. The mental depression was one of the most unfavorable symptoms, and was, no doubt, responsible for many deaths. One of our patients who had been an attendant on other patients gave up all hope as soon as the glandular swelling appeared.

The probability is that the disease will reappear next year, as it has prevailed for two or three years in succession in the districts southwest of Canton. It has extended to towns and cities which are in direct communication with the provincial capital, and its course in a northerly direction will be watched with much interest. It has now almost entirely disappeared from Canton and Hong Kong. Respectfully,

J. G. Kerr.

Canton, Sept. 10, 1894.

NEWS ITEMS.

Football Casualties.—On Saturday last the following accidents occurred: During a match between the Blackburn Rovers and Burnley teams, a Burnley player fractured his leg, and another "injured his ankle." At Tottenham Marshes a player fractured his right leg, and another player, in a match close by, dislocated his patella. In a match at Idle, between the Windhill and Idle teams, a player fractured his spine and died on the following day.—*Lancet*, September 29, 1894.

A football player, named Hudson, was killed, or rather killed himself, at Shipley, on September 22d. He charged the forwards, and so injured his neck and spine that he died on the following day. Our recent remarks on the dangers attending the present style of play and the need of some revision of the rules have excited the indignation of certain friends of the game; but such incidents as this serve to prove that the best friends of this sport are those who desire to see it shorn of those elements which tend to brutalization. The reports state that during the game at which this accident happened there was so much roughness that three players were ordered off the field. We trust that the comments we have recently made, which have been, we are glad to see, quoted extensively throughout the press, will have the effect of strengthening the authority of umpires and of encouraging them to interfere in time to prevent the repetition of the disasters which during recent years have outraged public sentiment.—*Lancet*, October 6, 1894.

Three Harvard players have been injured in one week. Arthur Brewer was hurt in the Orange game, and Waters and Mackie will not resume work till the last of the week.

"Ans" Beard was not at the field to-day, and inquiry to-night brought forth the fact that he has gone home to Poughkeepsie, N. Y. He had been complaining for several days of soreness, and has developed some stomach trouble. How serious that trouble is has not been learned.—*The N. Y. Herald*, October 16, 1894.

For a Better Milk-supply.—The Philadelphia Board of Health has instructed the Chief Inspector of Milk to indorse as untrustworthy all certificates testifying to the freedom of herds of milch-cows from tuberculosis that are not based upon the use of the tuberculin-test by trained veterinarians. A register is to be kept in which shall be recorded all herds of milch-cows that supply the city of Philadelphia that have been certified as free from tuberculosis by the method approved by the Board of Health, as well as such as have not been reliably certified and which are to be designated as "suspicious." These records shall also contain the names of dealers supplied from the various herds and shall be open to the inspection of the public. All producers of milk supplying the city of Philadelphia who fail after sixty days' notice to furnish a certificate or clean bill of health of their cattle, based on the method of examination demanded by experts and approved by the Board of Health, shall be reported to the Board and be liable to have their milk rejected as being suspicious.

Meetings of Philadelphia Medical Societies:

	Meets.	Next meeting.
Academy of Surgery,	1st Monday of month, Oct.—June.	Nov. 5
College of Physicians,	1st Wednesday of month, Sept.—June.	Nov. 7
Section of Ophthalmology,	3d Tuesday of month, Sept.—May.	Nov. 20
Section of Orthopedic Surgery,	3d Friday of month, Oct.—April.	Nov. 16
Section of Otology,	1st Tuesday of month, Oct.—May.	Nov. 6
Section of Surgery,	2d Friday of month, Oct.—May.	Nov. 9
County Medical Society,	2d and 4th Wednesdays of month, Sept.—June.	Oct. 24
Neurological Society,	4th Monday of month, Oct.—April.	Oct. 22
Obstetrical Society,	1st Thursday of month, Sept.—June.	Nov. 1
Pathological Society,	2d and 4th Thursdays of month, Sept.—June.	Oct. 25

A Course of Ten Lectures on the History of Medicine will be given in Alumni Hall (College Building) of the Medical Department of the University of Buffalo, by Dr. Roswell Park. The first lecture was given on Octo- 8th, at 8.15 P. M. Subsequent lectures will occupy each succeeding Monday evening till the course is completed.

These lectures have been so prepared as to treat of political, religious, philosophic, and other issues which have influenced the progress of the medical sciences. They are open to all who are interested in the subject.

Dr. W. F. Howard, Jr., has been elected associate professor of pathology in the Western Reserve University.

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ORIGINAL ARTICLES.

MATERNAL IMPRESSIONS.[1]

BY HUBERT WORK, M.D.,
OF PUEBLO, COL.

SINCE the time when the cunning and unscrupulous Jacob placed "pilled" rods in the streams where Laban's cattle came to drink, thereby multiplying the "ring-streaked, spotted, and speckled," which by previous agreement were to constitute his wages, the probable influence of maternal impressions on the unborn has been the subject of much speculation. Apparently in the time of Jacob such a probability was not open to doubt, as his historian made no attempt to attribute the success of the stratagem to other than natural causes, and that, too, at a period when most explanations were essayed from supernatural premises. Within the present century, however, scholarly efforts have been made to prove that the immaterial mind could not possibly "mark" or malform the material body. But instances multiply so rapidly that they have become embarrassing to those attempting to attribute them to the possibility of coincidence.

Those who believe that maternal emotions may influence the physical or mental development of the fetus have, in a measure, been silenced by the doubts of the skeptical and by the difficulty of giving a reason, which, together with the maternal instinct that prompts the concealment of congenital blemishes of offspring, have made the number of children having such defects appear much smaller than it really is.

I have no doubt that every observing medical man of ten years' obstetric experience can cite from one to ten or more instances in which the defects in a child corresponded in location and appearance to that which caused the impression upon the mind of the mother; while among the laity the number uncovered by inquiry is almost incredible.

At present, the proposition that maternal impressions may deform the child *in utero* must be proved empirically, by authentically recorded instances too certain and numerous to be explained by mere coincidence, reinforced by the opinions of physicians whose experience and professional standing are beyond question. With this in mind, I sent personally to a few physicians, whose deliberate opinions on any subject cannot be lightly regarded, the following questions:

1. Do pronounced impressions made upon the mind of a pregnant woman predispose to bodily defects and birthmarks in the child?

2. Do such impressions influence the mental development of the child?

3. If, in your opinion, bodily or mental defects are thus produced, which of the emotions most frequently cause these defects?

With the permission of the writers, I quote a few of the replies, not failing to record a single opinion expressing doubt, or denying the probability.

R. A. F. Penrose, M.D., LL.D., Philadelphia:

"1. Undoubtedly. Their influence is very great. Illustrative cases of everyday experience.

"2. I am confident they do.

"3. The emotions of fright, dread, disgust, indeed all the depressing emotions. On the other hand, I am equally sure that the mother's bodily and nervous condition may have the most happy influence on the fetus for good, both physically and mentally."

William Goodell, M.D., LL.D., Philadelphia:

"1. I believe that they do.

"2. I feel very sure that they do.

"3. Unquestionably the emotion of fear."

Louis Starr, M.D., Philadelphia:

"1. Yes.

"2. Yes, but not so frequently as physical development.

"3. Fear and shocking or disgusting sights, as of deformities, etc."

M. P. Hatfield, M.D., Chicago:

"1. I emphatically believe they do not.

"2. Possibly."

3. He gives as causes of these defects and marks: "Prolonged mental strain, especially when conjoined with the lack of proper food."

Matthew D. Mann, M.D., Buffalo:

"1. I think they do; I am sure I have met with instances.

"2. Have never seen anything to make me think that this is the case."

Barton Cooke Hirst, M.D., Philadelphia:

"1. I believe they do, but rarely. I have seen a child with a triangular piece out of one ear, whose mother had her ear violently tweaked in the second month of pregnancy by her husband, in a fit of

[1] Read before the Twenty-fourth Annual Convention of the Colorado State Medical Society, Denver, June, 1894.

passion. How can such a case be otherwise explained?

"2. Indisputably they do. Barnaby Rudge has many a prototype in actual life. I know personally of several cases of idiocy and perverted instincts due to maternal impressions.

"3. I cannot say. Fright and violent anger, I should think."

P. R. Thombs, M.D., Pueblo, Col.:

"1. Yes.

"2. Yes.

"3. The emotion of fear."

A. T. King, M.D., Pueblo, Col.:

"1. Yes. I have a record of three instances where such impressions did interfere with the normal development of the child.

"2. I do not know, as it is quite difficult to follow a child from birth to an age when such mental conditions could be observed.

"3. Fear."

Jesse Hawes, M.D., Greeley, Col.:

"1. Doubtful.

"2. Doubtful.

"3. A few facts seem to show pronounced impressions made upon the minds of pregnant women predispose to bodily defects and 'birthmarks' in the child. *Many* facts seem to teach a contrary belief. Question still *sub judice*, in my belief."

W. A. Edwards, M.D., San Diego, Cal.:

"1. Possibly.

"2. It seems probable that such effect is produced."

E. Fletcher Ingals, M.D., Chicago:

"1. I have never been able to discover any relation between mental impressions and 'birthmarks,' but mental or physical depression may check development, and thus cause defects in the offspring.

"2. I think not, excepting as stated above. The parents, one or both, laboring under cerebral, functional, or organic disease at the time of conception, may, I think, influence mental development."

Frank P. Norbury, M.D., Illinois:

"1. I have reason to believe they do.

"2. It is certainly a fact that mental development is predisposed or predetermined by the hereditary factor, which I believe may be influenced by pronounced impressions upon the mind of a pregnant woman.

"3. It is difficult to say, from lack of extended investigation, but I believe fright or sudden grief will, in an impressionable person, be most marked. . . . The mental habit or mental characteristic will largely determine this point."

F. E. Waxham, M.D., Denver:

. . . . "Personally I have never seen the defects that are so frequently attributed to mental impressions during pregnancy. As there is no nervous connection between the mother and fetus, I cannot understand why a mental impression can affect any particular portion of the anatomy of the fetus.

"I can readily understand, however, that severe mental agitation or mental shock, as from fright, anger, or sudden grief, by influencing the circulation, which may not be re-established, in a certain part of the fetus, may thus influence its development."

. . . . "This, to my mind, is the only reasonable explanation of these deformities. In the majority of cases I believe that mental impressions and bodily defects are simply coincidences. I have known of many cases in which mothers have been shocked during pregnancy, and they were sure that the infant would be born deformed as the result; but never have I known their predictions to come true."

The trend of the foregoing opinions is readily seen. But one is emphatic in his disbelief, yet as a cause of these defects he gives "prolonged mental strain," a state of mind in so many cases dependent upon mental impressions. "Mental or physical *depression*" is also given as a cause, a condition frequently secondary to mental depression in the susceptible pregnant woman; while a third reply advances the theory that "severe mental agitation or mental shock, by influencing the circulation, may influence the development of a part."

I have tabulated a few cases of congenital defects of physical development and "marks," after the plan of Dabney. But, unlike his list, which was taken from reported cases, the following table is made up from my own limited obstetric experience, together with cases narrated to me by physicians whom I meet daily; no attempt having been made to collect such data, and no case has been entered except those occurring in the practice of the physicians reporting:

There being no tangible nervous connection between the mother and the fetus through which disturbing influences might be conveyed, in the sense that a nervous impulse is transmitted, in my opinion the most probable explanation, both for defects of development of a part and of marks and scars as well, is that of the occurrence of a local circulatory stasis, apoplexy or inflammation, at some period of the gestation, induced by deviation from the normal of the chemistry or circulation of the maternal blood. Of the microscopic development of the fetal circulation we know little; but it is not presumable that there is the circulatory perfection in the forming embryo that is known to exist in the adult.

The fetus and the newly-born bleed readily, because of the weakness of embryonic tissue, and for

No.	Physician reporting.	Cause or nature of impression.	Period of pregnancy.	Nature of defect.
1	A. T. King,	Woman saw husband emerge from a mine frightfully burned. Feared child would be marked.	7th mo.	Child born with red spots similar in location and appearance to those on the father. Gradually faded out like the blush of a burn.
2	A. T. King,	Woman frightened by black dog trying to seize her ear. Feared child would be marked.	Beginning 7th mo.	Same ear of child of coarse texture with fringe of black hair on pinna.
3	A. T. King,	Woman suddenly confronted by mangled husband Felt child struggle violently, and announced its death.	8th mo.	Child stillborn on fifth day.
4	F. D. Green,	Woman saw hog disembowel a dog. No fear of defect in child.	Early period.	Absence of abdominal walls.
5	C. O. Rice,	Woman saw dog bite her daughter on right thigh. Insisted that her child would be similarly marked.	4th mo.	Child born at term with red scar identical in location and appearance with the wound of sister.
6	Hubert Work,	Woman frightened by rat striking her temple.	Last half.	Child born with black patch on same temple.
7	Hubert Work,	Woman much disturbed by congenital mark on face of friend's baby.	Entire period.	Child born with mark identical in location and appearance.
8	Hubert Work,	Woman much disturbed by seeing epaulets on husband, by which she knew he had enlisted in army.	First half.	Child born with cartilaginous epaulets.
9	Hubert Work,	Mother frightened in a practical joke by mass of sausage.	Late period.	Child born with skin of one side mottled like sausage.
10	Hubert Work,	Woman frightened by snake falling on shoulder, then to ground.	Late period.	Same side of child from shoulder to toes red.
11	Hubert Work,	This child matured and became pregnant. Feared her child would be similarly marked.	Entire period.	Child born with same marks as mother, but less vivid.
12	Hubert Work,	Woman had ear-ring forcibly torn from lobe of left ear. Thought ear was lacerated, but it was not. Did not fear child would be marked.	4th mo.	Child born with lobe of left ear divided from center through the edge.
13	Hubert Work,	Woman took peculiar delight in imitating walk of talipes equino-varus. Husband tried to prevent it, and impress danger of deforming child.	Last half.	Child born with double talipes equino-varus. No heredity.
14	Hubert Work,	Woman frightened by harelip man.	Early period.	Child born at term with harelip.
15	Hubert Work,	Woman suffered from conjunctivitis. Did not fear marking child.	Entire period.	Child born at term with red blush on eyelids, which gradually disappeared.
16	Hubert Work,	Woman saw enraged husband cut three toes from a chicken. Feared child would be marked.	Last half.	Child born with three stubs of fingers on one hand.
17	Hubert Work,	Woman saw child fall, cutting occiput. Avoided touching herself, believing that the part touched would be marked in child.	5th mo.	Child born at term with red patch over occiput.
18	W. W. Bulette,	A woman falling scalded both hands. No fear of mark on child.	5th mo.	Child born at term. Both hands looked identically as though scalded some weeks previously.
19	P. H. Heller,	Woman frightened by man with harelip. Feared child would be marked.	4th mo.	Child born at term with harelip.
20	P. H. Heller,	Woman saw man with "port-wine" mark on right side of face. Feared child would be marked.	Prior to 4th mo.	Child born at term with similar mark, but smaller, on right side of face.
21	Hubert Work,	Woman saw boy's face lacerated. Badly frightened; feared child would be marked.	8th mo.	Child born at term with red blushes similar to those of the injured boy.
22	Hubert Work,	Woman much impressed by seeing deformed ear of a guest. Feared child would be marked.	2d mo.	Child born at term with ear identical to that of guest.
23	Hubert Work,	Woman fell, cutting vertex. Feared child would be marked.	7th mo.	Child born at term with patch of white hair corresponding in location to injury of mother.
24	Hubert Work,	Woman frightened by seeing husband's arm and hand sprinkled with blood.	Beginning 8th mo.	Child born at term with same arm and hand mottled with red spots.

this same reason prenatal apoplexies are doubtless very common. With the immediate and remote results of such extravasations we are familiar: occlusions, with compensating collateral dilatation, local starvation, absorption, and inflammation, with its changes. The cessation, even momentary, of fetal circulation, cannot but be hurtful. The resisting power of the fetal tissue is below that of the maternal structures, which may not be impressed by the blood changes resulting from the emotional disturbance of grief or fear, or of kindred emotions, but which may be equal to causing an extravasation, or to the lighting up of an inflammation in the peritoneum of the fetus, or an inflammation of the meninges, possibly to a point where the brain is absorbed, and the child born an encephalic; or the palatine arch may suffer, and a cleft palate result; or at a later period inflammatory processes may occur in the scalp, resulting in the growth of a patch of white hair, or develop the unsightly nevus, the fainter blush of a "strawberry" or "fern-leaf;" or, if the process begins nearer the date of birth, the stage may be that of active suppuration, of which there are so many recorded instances; and in these cases the mother may remain exempt, as in those reported cases in which children are born with smallpox, syphilis, scarlet fever, etc., the mother being unaffected.

It is a simple process to trace congenital diseases existing at birth through the different stages of

repair to recovery, and from our knowledge of the healing process in similar lesions occurring after birth, we can form an approximate opinion concerning the time of the fetal lesion.

Case No. 78, of Dabney's table, in which the child was born six weeks after his older brother had suffered a bruised thumb, having a blackened nail identical with that of the brother, and coming off on the same day with his, was clearly of inflammatory origin. Also the case reported by Dr. Goodell, with the granulating prepuce. Case No. 1, of the table in this paper, was doubtless of recent inflammatory origin, and many others can be as clearly traced.

In cases of diminutive digits, it will be noticed that the member, though dwarfed, is entire, even to the shriveled nail, presenting the appearance of a member the nutrition of which has been interfered with, either by inflammation or its sequelæ, the acute process having subsided.

Those cases which present localized blushes, so frequently seen in the newborn, but which in a few weeks or months disappear, are, probably, from previous reasoning, results of maternal mental traumatisms.

That the milk of a nursing mother may be so vitiated by anger or grief as to excite vomiting, collapse, or convulsions in the child, or even cause its death, is no longer a question of doubt; and we know that the same emotions will destroy the fetus. It is not, then, unreasonable to believe that the maternal emotion able to kill the fetus or cause its immediate expulsion from the womb might accomplish the less violent result of a local vascular dilatation or an inflammation with ensuing deformity.

A noticeable feature in all reported cases is that those having a defect of development are attributed to a period of gestation when the part deformed is known to be in a formative state; while those describing skin-lesions are attributed to impressions occurring at periods only after the formation of the integument. The impression which marks the skin, doubtless, would, if received early enough, distort the body.

Observation has shown that the wife, after bearing many children to one husband, has grown to resemble him — not because of those physical changes common to age, but the physiognomy is similar. And it has also been noticed that the first-born more naturally resembles the father than the mother, particularly if pregnancy promptly follows marriage. Dr. Harvey, in the *Edinburgh Medical Journal*, has described the case of a creole woman who bore fair children to a white man, but afterward to a creole male bore other children who much resembled the white man, both in features and complexion. The influence of the first male upon the future progeny of the female has been recognized for many hundreds of years. The subsequent offspring of the Earl's Arabian mare that escaped to the desert and mated with a quagga, and of the domestic sow that mated with a wild boar, together with the instances cited in Abdel Kader's celebrated letter on the Arabian horse, are evidences of this, while the kennel-master of to-day regards as worthless the female dog which has mated the first time with a mongrel, after which she cannot be relied upon to transmit the characteristics of herself or of the purest sire. The blending of the blood of parents through the medium of the fetus has been offered in explanation of such influence, as being more reasonable than the possible influence of the mental impression coincident with the first sexual approach. The former theory perished when the physiologist learned that the fetal blood gave up to that of the mother waste only, in exchange for oxygen and nutriment, by osmosis.

Whether or not the mental stability of the child is influenced by the state of the mother's mind before its birth, because of the time necessarily elapsing between the impressions and the evidence, is a matter more difficult to demonstrate than the question of bodily defects. Yet there is a greater unanimity of opinion among physicians within the scope of my inquiries on the former than on the latter point; a vast majority evidently believing with Esquirol, that "it is often in the mother's womb that we are to look for the true causes, not only of imbecility, but often of different kinds of mania." This case, reported by the same authority, is so typical of the many coming under the observations of those given to such inquiries, that I quote it. "A pregnant woman, otherwise healthy, who was greatly alarmed by the threats of a drunken husband, gave birth to a child that had been so much affected by the mother's agitation that up to the age of eighteen years it was subject to panic-terrors, and then became completely maniacal."

The following conclusions seem justified by the information which has been available to me on this subject:

1. That both physical and mental defects follow maternal mental impressions with such frequency as to establish the relationship of cause and effect.

2. That these conditions are the result of changes in the blood, chemic, circulatory, or both, seems probable.

3. That the probability of defects in the fetus, from mental causes, is dependent upon the "mental habit or mental characteristics" (Norbury), or susceptibility of the mother.

4. That maternal anticipation of defect in the child has in itself no influence in the absence of a strong impression.

5. That the impression need not be lasting to cause defects.

6. That personal maternal injury is no more likely to mark the child than the sight of it in another.

7. That the defect is not necessarily similar in location or appearance to the object creating the impression, but is likely to be. The apparent constancy of likeness is due to the reporting of such cases only.

If we accept this theory, strengthened as it is by the opinions and beliefs of our greatest teachers and by constantly recurring cases equally reasonable and no more mysterious than a majority of medical theories upon which we base rules of practice, it becomes a part of our duty to so instruct those who depend upon our advice at such times, to avoid contact with those physically or mentally deformed, surgical operations, the sight of acute suffering, convulsions, confinement, death-bed scenes, or attendance on the injured, whether animal or human. And the possibilities of such impressions should be urged upon our municipal authorities, that the distorted stumps of the organ-grinder might be removed from the public thoroughfares, and the disease-corroded tramp be deterred from soliciting alms from every housewife who may chance to answer his knock.

THE TREATMENT OF CHRONIC OOPHORITIS BY LOCALIZED ELECTRICITY.

By EDWARD SANDERS, M.D.,
of New York.

(Continued from p. 429.)

About five years ago I began the use of electricity in the treatment of chronic oophoritis—at first with considerable doubt, but as time passed and positive results became manifest, with more and more confidence. Up to that time medical means had been my only reliance, and these failing, as they almost always did, except in the more recent cases, a resort to surgical interference was all that remained to be recommended. At present this latter advice is only given when electricity in proper cases has failed: for it is not claimed that it will always and invariably succeed. Due care being exercised in the selection of patients, it will cure in the large majority of cases; but experience has shown that there are certain instances in which it will fail or even do harm. Its failure to rapidly relieve symptoms I now regard an indication for operation, while their aggravation is an almost sure sign of the presence of pus. When it does succeed, and this it will do in fully 90 per cent. of all cases, the relief it gives is quickly obtained, although cure of the disease itself is not so soon brought about. Often patients declined further treatment simply because they could not understand why they should persevere when they no longer suffered, for it is remarkable how soon pain and the other distressing symptoms of the the disease vanished, even though the lesion itself showed no positive sign of improvement.

Electricity can be employed in the large majority of cases of chronic oöphoritis, there being, so far as my experience goes, but three contra-indications to its use: the presence of pus, that is, pus-tubes or pelvic or ovarian abscess; the coexistence of acute pelvic inflammation; while the presence of old, unyielding, and extensive adhesions between the various pelvic parts invariably leads to failure. Loose or recent adhesions do not forbid its use. When pus exists, its presence will be shown, when otherwise not indicated, by aggravation of pain, or the occurrence of an intermittent, bearing-down pain, labor-like in character, as I have a few times observed. These latter symptoms present themselves during or shortly after the application, so that their occurrence is of diagnostic significance, and forbids the further resort to electricity. When widespread adhesions exist no harm follows, but absolutely no benefit can be expected. Outside of these three contra-indications there are absolutely no others, no matter what complication may be present in the case; in fact, the treatment directed against the oophoritis will also serve to benefit and even cure all other uterine or tubal conditions coexisting, as, for instance, subinvolution, areolar hyperplasia, chronic endometritis, catarrhal salpingitis, pachysalpingitis, and even hydrosalpinx.

The advantages of electric treatment are manifold: (1) its safety; (2) the ease and painlessness of its application; (3) its non-interference with the daily routine of patients; (4) its restoration of parts to a normal or comparatively normal condition; (5) the possibility of future gravidity; (6) non-mutilation; and (7) when failure occurs the possibility of a resort to the more radical measures of surgery.

Now, as regards safety. Up to the present I have employed electricity many hundred times in the treatment of the various diseases of the female genitalia, and only once has there been an accident, and in this instance the fault was mine. This also has been the experience of all who have employed this agent.

As we have seen, the principal and most persistent opponents of electricity in gynecology are the celiotomists, and no wonder, for it invades the field which they consider their own. They claim that the difficulties and dangers of operation are increased by its previous use; that septic processes are set up, resulting in abscess-formation and adhesions; that valuable time is lost by what they call mere tinkering, and in this way results jeopardized.

Against these claims we have their boasted steady diminution in death-rate, which certainly does not indicate increased complications. Besides it has been conclusively shown that as a matter of fact the positive galvanic pole is actually a destroyer of germs, being one of the best antiseptics we have at present. In addition the same precautions, the same perfection of technique, are at the command of the electrician as are employed by the surgeon; and slovenly electrification like slovenly surgery must pay the usual penalty attached to carelessness. Due care, proper precautions, and due obedience to indications being exercised, the employment of electricity, as shown by the general experience of electricians, is absolutely without danger. In the foregoing remarks electro-puncture is left entirely out of the question, for this method I do not employ against chronic oophoritis.

These cases being "walking cases" may be treated in the office, care being taken to keep them comparatively quiet for an hour or so after the application. This done the woman may be allowed to go about her business attending to whatever work she may have to do. This, of course, within the bounds of reason.

It has been claimed that the use of electricity prevents future gravidity; that the woman is rendered as sterile as though she had had her ovaries removed. This, in my experience, is not true, for of the cases treated no less than seven became pregnant under observation, one in fact being twice delivered of living, healthy children after a previous sterile interval of four years. One other case had borne no child for five years, another for eight years, while still another had not conceived for eleven years. This result is all the more wonderful when we remember that sterility is the rule in chronic oophoritis.

The only disadvantage of this plan of treatment is its tediousness, months intervening before a cure is obtained. But, as we have seen, this is also true, and even to a greater degree, of surgery—one, two, and even more years often being required before the patients consider themselves well, even after their ovaries and tubes have been removed. So, as compared with oophorectomy, this objection falls to the ground. Besides, although six months or more are needed to cure the lesion itself, the symptoms often disappear after a few applications; not always, however, remaining permanently absent, though when they do recur they soon again disappear after further applications.

The plan of treatment recommended is comparatively simple, and requires only the ordinary apparatus called for in scientific electro-gynecology. A good working cabinet battery, consisting of a galvanic and a faradic apparatus is essential; my preference being for that made by the Waite & Bartlett Manufacturing Co. Connected with the galvanic battery we require a milliampèremeter and a rheostat. The galvanic cells should be sixty in number, connected up in series in such manner with a current-selector that any number of cells may be thrown into the circuit. In practice, however, it is best to employ the whole sixty cells, regulating the strength of the current by means of the rheostat; in this way the wear and tear falling upon all the cells alike, so that when our battery does give out it does so like the one-horse shay—all together. With the exercise of ordinary foresight there is no danger of shock, care being taken that all connections are properly and firmly made. The prefered rheostat is the so-called New Bailey Current Controller, latest pattern, which permits us to turn the current on or off with the utmost nicety and precision, and without fear of polarization.

The faradic apparatus should consist of four cells so arranged that one or all can be thrown into the circuit, and having a series of coils of coarse and fine wire, the latter being most useful in the relief of pain, and, therefore, the one most employed in chronic oophritis. Above all, the Engelmann coils, as supplied with the cabinet previously recommended, are to my mind the best so far in the market. The latest faradic apparatus recently introduced by this authority would seem to be even better.

The electrodes needed are few. A pad, either of clay, as recommended by Apostoli, or, what I prefer, one made of felt covered by oil-tanned chamois, which has the advantage of being durable, cleanly, and always ready for use, may be used for external application. The internal electrodes are a clay ball, a platinum sound, and a bipolar vaginal and a bipolar intra-uterine. The clay ball had best be modified by giving it a block-tin center and a chamois leather external covering, thus making it more durable and safer; the usual carbon center being in time softened and separated from the shaft, and in this way giving rise to shock, with its incident pain and fright.

When the simple relief of pain is our first object, the faradic current, fine coil, with very fine interruptions, is to be resorted to, the electrode used being either the bipolar vaginal or the bipolar uterine, the strength of current being regulated by the patient's sensations, never using a current strong enough to produce pain. The length of the sitting should be between ten and twenty minutes. Frequently I have employed faradism by placing the clay ball in the vagina and the felt pad over the abdomen or posteriorly over the lumbar region, according to the position of the ovary, the current being thus passed directly through the diseased

vagina. As a rule, when we resort to faradism it is only in the beginning of the treatment, the single object attained being the relief of pain. Generally, however, from the very start, galvanism is the form of the agent to be preferred, for in these cases it not only relieves pain almost as well as faradism, but it has the advantage also of at once initiating the cure of the disease. Faradism simply overcomes the symptom pain; galvanism relieves suffering, while at the same time bringing about a cure. Therefore, galvanism is the agent *par excellence* for the cure of chronic oophoritis. With the patient on her back, the knees drawn up and separated, the clay ball, wrapped in absorbent cotton wet with carbolic acid-solution, is passed, without using a speculum, up into the vagina to the vault, laterally, right or left, or posteriorly, the object being to bring it as close as possible to the affected ovary. When the ovary is about in its normal position, the external pad is placed over the lower abdomen; when the ovary is prolapsed into the lateral pouch or the cul-de-sac of Douglas, over the back. Care should be taken that all scratches, scars, moles, etc., are protected by some non-conducting material or oiled silk, rubber tissue, etc., and that all bony prominences are avoided, for otherwise pain will be caused. As regards the selection of the active pole: In the beginning, when it is very important to relieve the existing pain of the disease, the positive pole had better be preferred, for although its curative qualities are not as marked as those of the negative, yet its sedative properties are far greater. Pain having been relieved a persistent use of the negative pole should be entered upon. When uterine or tubal complications are marked and severe it will be best to resort to the platinum intra-uterine electrode.

The strength of current should vary between 50 and 150 milliampères, never less, if possible, than the former strength, never greater than the latter; the strength selected varying with the duration of the disease and the object to be attained, due attention being paid to the sensitiveness of the patient, and absolute pain being always avoided. As a rule, it is best to begin with the lower intensity, persisting with it if good results follow; but otherwise, if there be no visible improvement, the intensity should be gradually increased until the highest named is reached. Old-standing cases usually require the strongest currents. The duration of the sitting varies with the milliampèrage employed, three minutes with 150 and seven minutes with from 50 to 75 milliampères. The number of séances had best be about three a week in the beginning; later on, when decided improvement has taken place, two sittings a week only will be found sufficient, and toward the latter end of treatment one a week only will be called for. Of course, it goes without saying, that no applications are to be made just before, during, or immediately after the menstrual epoch.

The usual antiseptic precautions should be taken, cleanliness being as essential here as in surgery; while the patient should be directed to rest for an hour or so immediately after the sitting.

The average duration of treatment in my experience is about four months, though some cases do not recover in less than one year. Relapses are rare, though occasionally occurring, but again yield to the same plan of treatment.

So far I have treated 67 cases of chronic oophoritis by electricity. But of these only a minority are available in the determination of the actual worth of the method; for only 30 persisted in the treatment long enough to obtain positive results; while in 37 attendance was suspended too soon or was too irregular. Of the 30 in whom the treatment was carried on to the end, 27 were completely cured, while in only three was there absolute failure. That is, fully 90 per cent. were cured without risk to life or inconvenience of any kind whatever. Of these, five had been previously advised to have their ovaries removed by well-known New York specialists.

Only two of these cured cases were uncomplicated, the other twenty-five having various existing conditions which more or less modified and prolonged treatment. Thus, in seventeen cases there was complicating chronic endometritis, once there was uterine subinvolution, twice areolar hyperplasia was present, once adhesive uterus, once old pelvic peritonitis (giving rise to considerable matting together of parts), ten times there was prolapsus ovarii, once the ovary was adherent, three times there was pachysalpingitis, and in one other case hydrosalpinx was found. It is not claimed that the treatment in these cases always restores the ovaries to an absolutely normal condition, but this it does in the majority of cases. Even when, for instance, the ovary has remained prolapsed, or still gives to the touch indications of persistent change, all symptoms have disappeared and have remained absent as long as the patient remained under observation—often for months, and even years, after all treatment had been suspended. The average duration of treatment was about four months—in some the cure being wrought in less time, in others a longer time being consumed. Cure is obtained quickly in recent cases, old standing and widely complicated ones requiring more prolonged and persistent treatment. But, as we have seen, this is nothing as compared with operative interference, for when cure does follow in such it is usually only made apparent months and even years after the offending bodies have been removed. A noteworthy fact is here again to be emphasized—that

in no less than seven of these cured cases pregnancy occurred. This is all the more remarkable when we remember that sterility is the rule in chronic oophoritis, and it has been claimed that electricity is as sure to prevent conception as the actual removal of the ovaries. Thus one great objection to the use of electricity falls to the ground.

Of the three cases of failure, in one there was universal matting together of the pelvic parts by very old, unyielding, and dense adhesions to such a degree that some years before coming under my care removal of the ovaries had been attempted, but abandoned, by the late Dr. Hunter. Another case was one also of widespread unyielding adhesions. In both of these cases some temporary benefit was obtained at first, but the final result was failure. A third case was one in which treatment was, I believe, abandoned by me too soon, the sufferings of the patient being so great, and permanent benefit failing to follow rapidly, that operation was recommended. This was done, both tubes and ovaries being removed. One year later some improvement was noted, but the woman still suffered from as much pain as before operation, while menstruation continued regularly and accompanied by great pain during the flow.

Of the thirty-seven uncompleted cases no less than thirty were being more or less progressively benefited up to the time of abandonment of treatment. I have little doubt that some of these went on improving, as it is a remarkable fact that healthy action having once been set up by electricity continues even after the use of the agent has been stopped altogether. The same fact has been noticed after the cessation of the electric treatment of fibroids. That such is true has been proved to me by the presentation after a long interval of several patients who had previously voluntarily ceased attendance, but who remained absolutely free from symptoms referable to the ovaries during the interval, and in whom examination showed the cure to be complete. The complicating conditions in these thirty cases were eighteen times endometritis, twice areolar hyperplasia, three times adhesio ovarii, four times hydrosalpinx, once pachysalpingitis, and once uterine fibroid.

The seven cases of failure do not speak against this plan of treatment, for in not one of them was it continued long enough to determine anything, the number of sittings in none exceeding five, the rule being that only one or two seances were given.

To quote from a previous article (*The American Journal of Obstetrics*, etc., 1893, vol. xxviii): "Very few of these (cured) cases made uninterrupted recoveries; pain would for some time be absent entirely, only to recur on some indiscretion; menstruation might become perfectly regular, but occasionally the previous irregularity and dysmenorrhea would return temporarily. One symptom which almost invariably remained permanently absent after it had once vanished was dyspareunia. The patients' general condition also usually steadily improved. Intercurrent ailments always had a bad effect upon the symptoms, for on such occasions they almost invariably recurred, though never with their former intensity, and then only to again rapidly disappear on continuance of the treatment. The ovarian disease itself, though rapidly modified, was not so quick to disappear as the rational symptoms it produced. But almost from the beginning of treatment there was steady modification and improvement in the local lesion; sensitiveness diminished, the ovary became continually smaller and smaller until it reached its normal dimensions, and, if descended, as a rule it steadily rose up to its normal position, though there were a number of exceptions to this rule, the ovary remaining down, but otherwise becoming normal to the touch. Most of the cases were seen and examined months after the cessation of treatment, and remained well in spite of hard work and a return to their old mode of life, which was generally one of hardship."

To recapitulate: The main elements for success are (1) proper selection of patients, pus-cases, cases of acute pelvic inflammation, and those in which adhesions are old and extensive, being unsuited to this plan of treatment; (2) the use of a good-working apparatus, a well-constructed cabinet, an accurate meter, and a reliable, smooth-working rheostat, constituting the main essentials, together with the employment of the proper electrodes properly placed; (3) absolute cleanliness; (4) careful regulation of sittings as regards frequency, strength of current, duration, and seat of application; (5) rest for a short time after each sitting; (6) continuance of treatment during a period of from four months to one year; (7) indications being followed and treatment persisted in, we may expect a cure in fully 90 per cent. of all cases.

So firm is my faith in this plan of treatment that I would consider myself culpable, in the absence of pus, acute inflammation, or extensive adhesions, medical measures having failed, in recommending operation without having previously persistently employed faradism and galvanism. Electricity failing, the knife alone, and then only, is to be thought of. If this rule be followed a comparatively small percentage of the cases of salpingo-ovarian disease, pus-cases excepted, will demand operation.

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Treatment of Leukoplakia.—Rosenberg (*Münch. med. Woch.*, No. 39, p. 771) has successfully treated by applications with a brush of a 20 per cent. solution of potassium iodid an obstinate case of leukoplakia linguæ, which had for seven years resisted varied forms of treatment.

SUPRAPUBIC CYSTOTOMY FOR CHRONIC CYSTITIS.[1]

By J. S. PRICE, M.D.,
of Beaumont, Texas.

The older writers seemed to have known but one indication that would warrant opening the bladder above the pubes, and that was vesical calculi. Notwithstanding the time-honored law of placing an inflamed organ at rest, the bladder was denied that physiologic rest for which it so often appealed, for the reason, perhaps, that the pathognomonic click of a stone could not be elicited.

It is the purpose of this paper to point out some of the salient indications demanding the operation of suprapubic cystotomy among those cases of chronic cystitis that have proved intractable to other more conservative measures. Like its close companion, symphysiotomy, it is fast finding a place in surgical procedure, and, not unlike unhinging the pubic symphysis, it has its contra-indications.

In Chelius' *System of Surgery*, translated from the German edition published 1847, the high operation is spoken of as follows:

"Cutting for the stone by the high operation consists in opening the bladder between the upper edge of the pubic symphysis and the fold of peritoneum passing over the bladder; this operation was first performed by Franco in the year 1561, and he must be considered as the discoverer of the method, although Archagines had previously proposed it. Rouset closely describes the proceeding and points out its advantages. It found, however, but little acceptation on account of the still general opinion of the great danger of wounding the bladder, until it was first again performed in England by Probi; then brought into some repute by John Douglass, Cheselden, Prye, Thornhill, MacGill, Heister, and Moran. The lateral operation, however, soon displaced it; but Frere Comes' fortunate experience (1779) raised it again for a short time."

Dr. William T. Belfield, of Chicago, very happily remarks that cystitis, in his opinion, belongs in the same category as jaundice, dropsy, and fever—a symptom and result; a signal to search for a cause. Keyes classifies the causes of cystitis as follows:

1. Traumatism, mechanical or chemic;
2. Extension of inflammation;
3. Exacerbation of preëxisting inflammation;
4. Specific action of drugs;
5. Neurosis; to which Dr. A. Vander Veer adds
6. General or systemic infection.

In considering the first members of his classification one of the most prolific causes will be encountered in dealing with strictures of the male urethra. Here we are confronted with cystitis arising from two factors, mechanical interference from impermeable stricture, coupled with an extension of gonorrheal infection to the walls of the viscus. If seen early in its history the merest tyro in surgery is equal to the emergency, and relief is speedily given by an external perineal urethrotomy, but unfortunately such is not always the case, as a pen-picture from Dr. W. B. Rodgers, of Memphis, Tenn., well delineates:

"A perineum red, tense, and bulging; a scrotum almost projecting itself forward, firm, tense, infiltrated, and here and there marked by fistulous openings discharging foul-smelling pus. Careful inspection shows but the faintest outline of a perineal raphé, and that thrown to the side; palpation fails to detect scarcely more than the sides of the subpubic arch; *per rectum*, the finger locates the prostate and pubic rami for a short distance; but all else felt anteriorly is a hard, swollen mass.

"The history of the case is one of multiple stricture of years' standing; efforts at dilatation have resulted in false passages; the urethral tissues have been cicatrized to the last degree by electricity in the hands of a novice. The bladder is now filled to its capacity; the new-formed perineal abscess has produced a high temperature with occasional rigors, and an hour's careful effort, aided by anesthesia, has not succeeded in passing a guide beyond the bulb. Such is a case for external perineal urethrotomy without a guide.

"An anatomist can readily reach the healthy urethra through the normal perineum without the aid of the staff or other urethral guide, and that, too, with comparatively little danger to the patient; he has his landmarks to go by; but when these are destroyed by old fistulæ, by new collections of pus, destroying the median line, and even the course of the urethra itself by inflammatory processes, blending and matting together in one conglomerate mass every muscle and plane of fascia, the scene has changed, and anatomical knowledge and skill are taxed to their utmost, as line by line the tissues are divided from without, until finally, aided by good light and the sense of touch, the urethra is found, opened, and a probe is steadily passed onward to the bladder.

"The opening of the membranous urethra by an incision through a pus-infiltrated perineum without the aid of a urethral guide has been rightly styled one of the most delicate and difficult operations in surgery."

Fortunately for the less brilliant operator, there is a nearer route to the bladder, on reaching which the proximal opening of the urethra can be entered with a soft-rubber bougie and made to locate the strictured portion from within, the steel sound indicating the distal portion of the stricture. We can safely cut down between the two and bring the soft instrument partially through, leaving it in the strictured portion until healing takes place. Dr. Hunter McGuire conceived the idea of relieving those confirmed cases of chronic cystitis arising from enlarged prostate, when catheter-life was no longer practicable, by the establishment by means of the simple operation of suprapubic cystotomy of an artificial urethra, through which we are enabled to drain the bladder and treat the chronic inflammation which always attends these cases. The most gratifying results have invariably attended his work.

The perineal operation fails to afford perfect drainage to the bladder, especially in the old, in whom the posterior wall of the bladder has become literally lower than its outlet; consequently, if an inflam-

[1] Read before the Southeast Texas Medical Association.

matory process be engrafted, we find the organ placed *hors de combat* in the matter of completely evacuating itself. Hence, bacterial and chemic changes take place in the residual urine, thus tending to perpetuate a cystitis that would yield to ordinary remedial measures in the young.

Tuberculosis of the bladder has always been an opprobrium to the science of surgery, yet it would seem from the gratifying results reported by those who are authorities on this subject, that

"In suprapubic cystotomy we open up a direct route for the more effectual treatment of the tubercular lesions, and thus not only constitute the most efficient palliative measure, but also the most effective procedure in retarding the local extension of the disease by direct, vigorous anti-tubercular treatment." (Senn.)

If malaria can be excluded, I believe, when in doubt, we are justified in opening the bladder in all cases of chronic cystitis; we are then able to discover and treat the cause under conditions most favorable to recovery. It might be urged that we could arrive at a correct diagnosis by the use of the cystoscope; but unfortunately we are not all familiar with its use, and in nine cases out of ten when its use becomes necessary to a diagnosis the result is operative procedure in the end; hence, the general physician will not go far amiss if he operate at once on all his cases of chronic inflammation of the bladder that fail to respond to the routine treatment of this malady.

In answer to a letter addressed to leading American surgeons, Dr. B. F. Hadra, of San Antonio, Texas, among others, replies as follows:

"In my opinion, cystotomy, or rather cystostomy, is the rational treatment in cases of chronic cystitis that have resisted the usual treatment by internal medication, by injection, dilatations, etc. The procedure gives an easy opportunity to find the pathological cause (if cystoscopy is not resorted to), which often is hidden. Thus small calculi, polyps, tumors, tuberculosis, etc., may be diagnosticated and attended to at once; then it will allow a good drainage, the evacuation of the residual urine, a thorough washing, and the establishment of a permanent canal. In tubercular cystitis the operation has sometimes been followed by the same beneficial effect as the corresponding operation in peritoneal tuberculosis, perhaps by admitting air. In prostatic enlargement, it seems but reasonable to give the viscus another chance of thorough evacuation; I am though, of the opinion, that, as a rule, the suprapubic operation should be done, even in the female. Perineal cystotomy, as a method to procure drainage, is a total failure, simply from anatomical reasons. Cysto-vaginal fistulæ are repugnant and hard to keep working. All this is overcome by a suprapubic artificial urethra, which can be borne for a lifetime without much annoyance, if properly attended to, and the operation is almost free of danger and in the grasp of the general practitioner."

Dr. William T. Belfield, of Chicago, replies as follows:

"Regarding chronic cystitis as almost invariably a secondary condition, a consequence of some antecedent morbid condition, I do not treat the cystitis by cystotomy or in any other way. I endeavor to recognize and detect the cause that I feel sure exists. Sometimes it is impossible to remove the cause when found; carcinoma or tuberculosis, for example; in such a case an artificial incision may be a desirable palliative measure. Sometimes it is impossible to detect the cause even with the cystoscope; in such a case, an incision serves both for exploration and for drainage. But a cystotomy as a means for treating cystitis I never make, because, as already stated, there is something back of the cystitis which the surgeon should search for. He may find the cause at any portion of the urinary tract from meatus to kidney, or in the adjacent organs—uterus or broad ligaments in women, rectum in men, etc. Cystitis, in my opinion, belongs to the same category, as jaundice, dropsy, and fever—a symptom and result, a signal to search for a cause."

Dr. Hunter McGuire writes:

"I have relieved chronic cases of cystitis repeatedly by performing suprapubic cystotomy and relieving the bladder."

In one of Dr. McGuire's clinical lectures the simplicity of the operation is so well portrayed that I give it as an example of the ease with which the operation may be done. Speaking to his class of students, while lecturing on the formation of an artificial urethra in chronic cystitis from enlarged prostate, he said:

"With this small scalpel I make an incision through the skin and superficial fascia in the median line, commencing about two inches above the pubic bone, and extending down to the level of its upper border; the recti muscles are now exposed, and I separate their fibers with the handle of my knife, and the wound is deepened to the tranverse fascia. This I incise, and you see the pre-vesical fat, which always lies just in front of the bladder. There are several large veins running through it, so I shove them aside without injuring them, and scratch through the friable tissue. My finger now rests upon the walls of the bladder, and I can plainly feel the fluctuation of water it contains. I place the back of my knife against the upper border of the pubis, and boldly push its point through the wall of the bladder and cut upward about half of an inch. I take a stitch through its walls and the skin at the margin of the wound, and the operation is completed. It has not taken me more than two minutes, and I have used no instrument except this little knife. The loss of blood has not exceeded a teaspoonful, as the incision has been made through tissues which contain no vessels large enough to be dignified by a name."

In conclusion I will give some notes of a case that will demonstrate the point that I have striven to establish in this paper:

T. I., colored, aged eighteen years, has no history of venereal disease; his present disease dates back to childhood, when his parents, after using all persuasive means at their command, finally thrashed the child for an enuresis over which he tried in vain to make them understand he had no control. His complaint grew worse as years passed by, compelling him to leave his work every hour or two during the day to evacuate his bladder. Strange to say, he never sought medical aid until I was called to him one night. Vesical tenesmus had become so un-

bearable that he was unable to sleep. A collection of his urine revealed almost half blood, a condition that he had more than once noticed. The symptoms simulated so closely those of stone that I was quite certain that with the ordinary silver catheter I could relieve the bladder and at the same time confirm my diagnosis. The catheter was passed, and no sooner did it reach the cavity of the bladder than a decided sensation was conducted to my fingers; while not quite sure, I believed it to be a stone with which my catheter had come in contact. The interference seemed to aggravate his condition very much, so much so that morphin had to be given to restore quiet. His father was informed that an operation was necessary, to which he readily agreed. The boy was brought to the office the following day, where I had invited several of my confrères to assist in the proposed operation. After again examining his bladder it was found to hold only about six or eight ounces of liquid, which we used to distend the viscus thoroughly. The same sensation, as if some hard substance suddenly came in contact with the sound, could by a certain movement again be elicited. It was decided to try systemic measures, which had hitherto been neglected, that we might ascertain the benefit to be derived therefrom. He was very much emaciated, and was placed on Basham's mixture of iron. I was compelled to use some form of anodyne constantly, as no improvement had taken place in the vesical tenesmus, which grew so unmanageable that relief must come from some other source, and hence his father was requested to bring him again to the office, where a suprapubic cystotomy was performed, with the kind assistance of Drs. Blewett, Perkins, and Selman. Upon opening the bladder there was an alarming gush of blood, as if a large vein had been cut. This was speedily controlled by a bichlorid solution. The bladder was very much thickened, and adherent anteriorly to the abdominal walls.

The index-finger, when passed around the walls of the bladder, received a sensation as if the entire surface was covered with papillomata. This, of course, explained all the foregoing history, the diagnosis of which my microscope and sound had failed to reveal; had they so served me in making a diagnosis, it will be understood that the treatment would have been the same—a point that I trust I have well established in this paper.

An attempt was made to scratch away some of these growths, but their extreme vascularity compelled me to desist.

It is claimed that pyoktanin, or methyl-blue, has a peculiar affinity for the nuclei of embryonal tissue, and is a great pus-destroyer; consequently, with this rationale of its action, it was used in a solution of about one dram to the quart of water, flushing the bladder through the urethra, and allowing the solution to escape through the upper opening. Pus, though at first very abundant, rapidly diminished, until finally there were no traces to be seen on irrigating. The bladder-cavity was so small that it was impracticable to close the opening, which has a constant tendency to close; hence, he has to pass his urine more frequently than usual. Though this is a source of annoyance, the boy says that he is much more happy than formerly.

CLINICAL LECTURE.

PREMATURE MENOPAUSE; RETROVERSION; REMOVAL OF APPENDAGES; RETRO-DISPLACEMENT WITH FIXATION.

Delivered at the Jefferson College Hospital, March 13, 1894.

By E. E. MONTGOMERY, M.D.,

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PREMATURE MENOPAUSE.

Gentlemen: I bring before you to-day a patient with the following history: She is twenty-seven years of age, had good health as a child, and the family history is a good one. She suffered no special diseases during childhood; puberty occurred at fourteen, the menses were regular, the intervals being five weeks, the periods lasting three days, the discharge profuse and quite painful. She has been married four years, has had no children, indeed, has never been pregnant. Menstruation continued regular after her marriage, but gradually became less, and continued for periods lasting a shorter length of time, until October last, when it ceased. When married her weight was ninety-eight pounds; at present it is one hundred and seventy. She enjoys excellent health, without pain or ache. I bring her before you to consider the history, which presents a record of having a slight physique, with menstruation regular, painful, and rather profuse. In a short time she has increased largely in weight, and associated with it is a cessation of menstruation. This is one of the cases in which it is quite probable there has been a premature menopause, and it is more than likely due to the excessive amount of adipose tissue, which has developed in this individual to such an extent as to be, to a certain degree, an indication of disease. The excessive rapidity of the deposit of adipose tissue has resulted in the arrest of the menstrual function; possibly in the change of the ovary itself, so the process of maturation of Graafian follicles has been arrested, and this is one of those cases in which undoubtedly ovulation has been discontinued, and with it the accompanying pelvic congestion which causes menstruation. These cases are not very frequent in occurrence, but occur occasionally, and it is well known that patients may have amenorrhea attendant upon a large amount of deposit of adipose tissue, particularly where this deposit has occurred rapidly and in a way to indicate, almost, disease of itself. The probability of restoration of the function in such a patient is rather doubtful. If she was very desirous of having children it might be well to put her on a course of diet which would decrease the amount of fat, giving her largely albuminous foods, cutting off starches, sugars, and fats, and giving a very limited amount of liquids. In addition it would be well for her to be placed upon the use of alteratives, such as the chlorid of gold and sodium in conjunction with tonics, as extract of nux vomica; the action of the bowels should be regulated. In other words, our course of treatment should be directed to increasing the quantity of blood and decreasing fat. I question whether in this

patient any plan of treatment would result in cure of the condition and increase the probability of conception.

I have received to-day a letter from a graduate of this school, asking me to send him my best prescription for amenorrhea. This is a very difficult task. I do not know of any prescription that can be designated as the best one for amenorrhea. The treatment must be dependent upon conditions present in the patient. We must examine the individual and treat the particular symptoms. As you can readily understand, the treatment in this patient would be very different from that in an individual suffering from chlorosis, in whom the absence of menstruation was due to a serious blood disorder.

RETROVERSION.

The next patient has been treated in the out-patient department since the 12th of December. She is twenty-one years of age; puberty occurred at fourteen; the menses are regular, lasting six days. Three years ago she had pain in the abdomen, which occurred before each menstrual period and continued for two days; she has been married three years and has had two children, the last born five months ago. The labors were normal, and she was in bed eight days during each puerperal convalescence. She has never had a miscarriage. At the time she applied for treatment she complained of pain in the back, a feeling of weight and tension in the lower abdomen and pelvis. She has had a hemorrhagic discharge at times, and before the class some time ago the diagnosis of subinvolution was made, and she was directed to be placed upon the use of tonics and hot-water vaginal enemata. She has been given quinin, ergotin, iron sulphate, and hot-water enemata. The uterus was retroverted and in a state of subinvolution. As I examine her to-day I find the uterus occupies its normal position, the fundus lying forward, the cervix directed backward. When she first came under our observation she had been delivered but two weeks previously, and suffered consequently from a large subinvoluted uterus which fell back of its own weight.

A backward displacement of the organ necessarily interfered with its circulation, keeping up the tendency to subinvolution. The first step, consequently, in the treatment of such a case would be to replace the organ and maintain it in its replaced position. This procedure will bring about a change in the circulation. Just so long as the organ remains in the abnormal position circulation is interfered with, and we shall have her suffering from arrest of involution and increased weight of the organ. The only way to bring about proper involution of the organ is to replace it and maintain it at a higher level. The circulation is thus improved, and we may hope for an improved condition. After the delivery of the woman, as she lies on her back, the heavy uterus drops backward, or if a bandage is tightly applied, the fundus may be forced backward. If this position is maintained for a length of time, it settles further down in the pelvis, and the displacement is increased by constipation, by any intra-abdominal pressure, which necessarily is directed against the anterior surface of the fundus and drives it further down into the pelvis. The process of involution is necessarily arrested by the interference of the circulation, and, as we have already said, the first thing to do is to replace the organ and use means to maintain it.

Ordinarily the organ is very readily replaced. This is done in one of three ways: 1. By placing the patient upon her back with the limbs flexed, and, introducing two fingers into the posterior fornix, we push up the fundus with the middle finger, while the index hooks over the front of the cervix, pushing it backward and upward. This action on the lower end of the lever tilts the other end forward until it can be grasped by the hand over the abdomen and dragged forward in the position of anteversion. 2. The patient is placed in the same position as before, the sound or one of the repositors is introduced, and the restoration of the uterus to its normal position accomplished. If a sound is used, it is curved so that it passes into the canal without producing undue pressure, and then its external end is rotated through a wide arc, and by pressure with the finger against the fundus through the posterior cul-de-sac or through the rectum, and pressure backward upon the external end of the sound, the fundus between the two is carried forward. This method of procedure, however, is one that should be rarely exercised on account of the injury that must necessarily take place to the uterine mucous membrane. 3. The third method of procedure consists in placing the woman in the genu-pectoral position, that is, upon knees and chest. In this position the intra-abdominal pressure is not only removed but to a certain degree aspiration induced, when, by introducing Sims' speculum the vagina becomes ballooned and the fundus of the organ is carried upward. We should not make the mistake, however, of supposing that the abnormal position is necessarily corrected; the fundus will be carried up and remain in its abnormal position. This can be corrected by grasping the cervix with a tenaculum or volsellum, pulling down upon it and carrying it backward and forward, when the position is at once corrected.

We now have to consider how it shall be maintained in this position. The most usual method of maintaining the uterus is by means of the pessary. Of pessaries we have a large variety. Those most frequently used are the modifications of the Hodge pessary, known as the Smith-Hodge; I like still better the Thomas and Mundé, both of which have a thickened posterior bar. The latter, probably, is the better, as the pessary is broader at its posterior surface and converges toward the anterior. It is important in using the pessary to make sure that it is well adapted to the patient for whom it is used. To determine this the parts should be carefully measured to see that the pessary is of proper length and width. The length can be determined by passing two fingers into the vagina, pressing up into the posterior fornix and measuring the point at which the arch of the pubis strikes against the finger. This gives the length of the pessary that can be readily borne. A pessary too short will permit the fundus to fall backward and subsequently bend over the pessary, forming a retroflexion which will give more discomfort than the original condition. The width that can be comfortably borne will be determined by separating the fingers in the vagina. A pessary that is too long will press uncomfortably against the posterior fornix or will project from the vulva and give rise to distress in sitting and walking. If it presses against the lateral or posterior wall it may give rise to ulceration

and the cicatricial tissue following will be so tender that a pessary subsequently cannot be readily borne. As it is introduced the parts should be carefully examined that it does not cause undue pressure, and instruction should be given the patient how it may be removed in case it causes distress. If the parts are tender and the pessary cannot be borne, a tampon of gauze, cotton, or wool should be introduced, to hold the organ up. In this way the posterior fornix may be stretched, inflammatory exudation absorbed, and tenderness relieved, so that subsequently a properly fitting pessary may be worn. It should be kept in mind that the posterior bar of the pessary does not support the fundus of the womb; in other words, the womb does not rest on the pessary, but by a pulley-like action upon the posterior fornix of the vagina the cervix is drawn backward and upward, and consequently the other end of the lever falls forward. When a pessary is introduced the patient should be cautioned to return at the end of a week for an examination, and subsequently she should not go for longer than two months without its removal for cleansing. During the time the pessary is worn no injection of metallic salts should be used, for the reason that they may lead to a deposit upon the surface of the pessary, roughening it and rendering it a source of irritation. Even when injections are not used, the secretions of the vagina will lead to deposit of their salts upon the surface of the pessary, causing it to become roughened. This roughening irritates and abrades the mucous membrane, leads to the formation of granulations which may subsequently completely envelop the pessary. I was called to see some few years ago a woman who had worn a pessary for twenty-six years without its removal. In her case the posterior half of the pessary was completely imbedded in tissue that was probably half an inch in thickness over the posterior bar of the pessary. The appearance of this tissue and the character of the discharge associated with it led the physician to suspect it was a form of malignant disease. Examining the case, I did not care to cut through the dense tissue to remove the pessary, so I drew the pessary down on one side with a pair of bone-pliers, cut it in two, and on the opposite side in the same way, then the remaining portion was slipped out of its groove. The irritation subsided and the patient recovered. In this case the result, of course, was a cure of the displacement for which the pessary had been used, but we would not care to follow such a plan in many cases. When we find the pessary cannot be borne, a tampon may be applied. Tampons may simply consist of gauze or wool, or may be medicated with various agents. Some preparation of glycerin is most generally used for this purpose, for the reason that it has a marked affinity for the watery portion of the blood and acts practically as a hydragogue, producing a free depletion of the bloodvessels. With the glycerin we may combine various medicinal agents, such as potassium iodid, muriate of ammonia, or ichthyol, agents which have a marked alterative effect upon the mucous membrane. Of these agents probably ichthyol is the most efficient, using it in ten to fifteen per cent. solution in glycerin. It acts not only as an alterative agent, but it has a positive anodyne effect upon the pelvic tissues. In consideration of the replacement of the uterus, we may find in some cases the fundus of the organ is caught beneath the promontory of the sacrum, where the bone is markedly curved. In such cases we are unable to accomplish the restoration. We may, however, readily effect it by catching the cervix by means of a tenaculum or volsellum, dragging down upon it, while the fundus is pushed upward with the finger, either in the rectum or posterior fornix of the vagina; then carrying the cervix upward and backward, the fundus is brought forward into its proper position. There are some cases in which the fundus of the uterus is held in a retroverted or retroflexed position by adhesions between it and the rectal wall, or the uterus may be more or less bound down in such an abnormal position. This can be overcome in one of two ways: first, opening the abdomen, tearing up adhesions and bringing the uterus forward. When this is done it is a preferable procedure to fasten the uterus by means of the introduction of sutures, performing the operation known as hysterorrhaphy or ventro-fixation. The other method is one that is less rapid in accomplishing it, and yet is one that is certainly effective, and that is by means of pelvic massage. Introducing two fingers into the vagina and with the other hand over the abdomen, bring the offending organ between the two hands, lifting it up a number of times, and stretching the ligaments as far as they will permit, then moving the uterus from side to side, in this way putting the parts through a massage which results in the absorption of any exudation or bands of adhesions, and subsequently the entire freedom of the uterus. Another method of procedure that has been suggested for maintaining a retroverted uterus in its normal position is known as the Alexander operation, which consists in making an opening upon either side over either inguinal ring, exposing and drawing out the round ligament. This method of procedure, however, is subject to a number of objections. First, in such cases the round ligament may have become so atrophied that it is useless to serve the purpose; second, where any inflammatory condition has existed in the pelvis the ligament may have been more or less bound in its groove and does not readily slip; third, it is necessary to make two wounds in a position in which it is difficult to protect them and preserve the parts from subsequent infection; fourth, any infection which takes place here may result in the failure to fix the round ligaments, and these infected structures slipping back carry infection beneath the peritoneum to a point which is difficult to reach, so that the patient necessarily suffers danger. On the other hand, by ventro-fixation we have but one wound; the uterus is more certainly brought forward in its normal position; it is applicable to a greater variety of cases, and the danger of infection is much less.

REMOVAL OF APPENDAGES.

This patient is twenty-three years of age; her father is living and healthy; the mother died from bronchitis. She was healthy as a child; puberty occurred at fourteen; menstruation is normal; she married at seventeen, and has had three children. The first labor was protracted, instruments were used, and the perineum lacerated. Her last child was born two years ago, without instruments. Four weeks later she was sick with a pelvic inflammation, and was confined to bed for three weeks. She had a second attack four

months later, which also lasted two weeks. A month before entrance to the hospital, on the 14th of February, she was confined to bed a week with a third attack; she complains of pain in the left inguinal region since the first attack of inflammation, also pain over the sacrum, and she has frontal and coronal headache. Three months after her first labor the perineum was repaired. On operation, we found the left ovary partly occupied by a small cyst. The tube was enlarged and occluded, both tube and ovary were removed. The right ovary was normal in size, but projecting from it was a hematoma which was equal in size to another ovary. The tube was similar to that of the left, and was also removed. The wound was closed with a single row of silkworm-gut sutures. Subsequent to the operation the patient had an elevation of temperature and some suppuration in the line of the wound, which rendered recovery slow. She has been suffering since the operation with some pain in her abdomen. You see the line of the cicatrix here and suppuration in the median line. One point of interest in this patient is, that following operation on the perineum she has had a great deal of discomfort in sitting down. The operation known as the Tait operation was performed, and the inconvenience has been induced by carrying the incision too far out upon the integument, so that a band of tissue was formed which is rendered tense by separation of the limbs, and in sitting down this becomes extremely painful. I propose to give relief by cutting through the band and stitching the skin edges together on either side. Such an example as this should teach you to be careful in operation not to bring your union out upon the skin-edges, as such a cicatricial band gives rise to very great discomfort. In examining this patient's pelvis I find no special trouble. The uterus is slightly flexed, there is some induration of the broad ligament on the left side; nothing, however, that indicates any suppurative condition or collection of pus. The patient has been kept perfectly quiet, her bowels regular, douches of hot water given in the vagina, and counter-irritants over the abdomen; with administration of tonics, a certain amount of rest will be sufficient to bring about her relief. This may also be very greatly expedited by the practice of uterine massage, as the manipulation of these tissues is just as effective in promoting absorption or exudation as it could be in ankylosis of the limb.

RETRO-DISPLACEMENT WITH FIXATION.

The next patient is twenty-five years of age, and both of her parents are still living. She has been suffering from some pelvic disturbance for quite a length of time. She comes to-day for the purpose of undergoing careful examination. As we introduce the finger into the vagina, we find it comes in contact about an inch-and-a-half from the vulva with the cervix, which is directed in the axis of the vagina. As we pass the finger into the posterior fornix it comes in contact with the posterior surface of the uterus, showing that the fundus of the uterus is lying in Douglas' pouch. Pressure shows that there is a certain amount of fixation in the broad ligament, more particularly on the left side. This is one of the cases in which there may be a question with regard to the treatment of the patient by means of uterine massage. The first thing is to secure, as a prerequisite, the coöperation of the patient. If the patient resists at every effort at the correction of the displacement we shall have great difficulty in bringing about the desired result. At present the fixation is so great that we could not at once bring about replacement of the organ. Adhesions occur between the rectum and the uterus, and prevent us bringing about the relief by manipulation, which could be accomplished otherwise, and it will be necessary to subject her to uterine massage for a length of time in order to break up and absorb the adhesions and enable us to bring the organ forward.

CLINICAL MEMORANDUM.

A CASE OF GUNSHOT WOUND OF THE HEART.

SERVICE OF DR. KERR,
SURGEON TO THE EMERGENCY HOSPITAL, WASHINGTON, D. C.

[Reported by JAMES R. CHURCH, M D., Senior Assistant Resident Physician.]

WHILE a case of gunshot of the heart, with survival for a time after the injury received, is not unique in the annals of surgery, yet such instances are of interest as an indication of what perhaps may develop some day along this line in parallelism with the surgery of the brain.

A. W., a white man, sixty-seven years old, was brought into the receiving-ward of the Emergency Hospital at 5.40 P.M., suffering from a gunshot wound of the thorax inflicted at 4.50. Upon his admission he was in a state of collapse, the features pinched and pale, the body covered with a clammy perspiration, and the dressings over the wound stained with blood. The wound, which had been made by a pistol-bullet (32 caliber), was situated one-and-a-quarter inches below the mammary line and a little to the left of the center of the sternum, and through it considerable blood had escaped. The pulse was almost imperceptible, the respiration fair, the mind wandering. The man was put to bed, the usual therapeutic agents were employed, and transfusion was performed, but the condition became steadily worse, and death took place at 7.45.

A post-mortem examination was made, which showed that the ball had pierced the sternum just above the xiphoid cartilage, and entered the pericardium to the right and at the lower part. The sac was filled with blood, both fresh and clotted. The heart was pierced through the right ventricle, as shown in the photograph, which shows the anterior wound, one-half inch in diameter. The wound of exit was five-eighths of an inch in diameter and ragged. The diaphragm was perforated and the omentum wounded in several places.

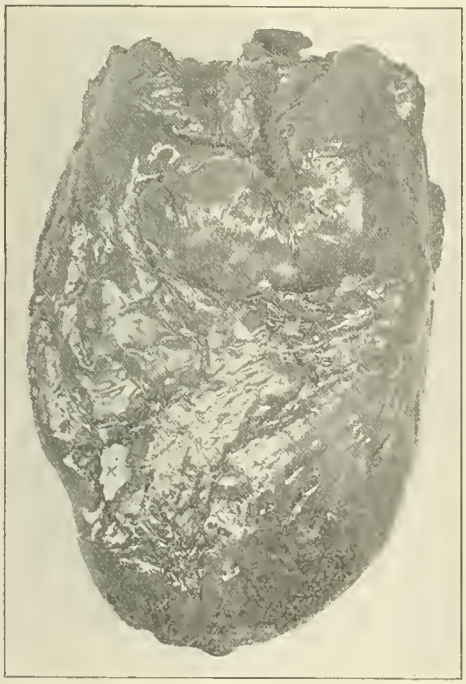
The ball itself was lodged under the skin posteriorly between the ninth and tenth ribs.

The hemorrhage had been very fierce. the pericardium being choked with blood, the pleural cavity containing a large quantity, and the peritoneal cavity considerable.

The question which naturally presents itself in view of such cases is the possibility of some reparative measure. If a man can live for three hours with such an injury, it does not seem beyond the bounds of possibility that, with the advance of surgery, operative interference may at sometime be justifiable. The surgeon of to-day hesitates to meddle with the heart, but the views of cardiac surgery are probably no more pronounced now than

were the opinions on brain-surgery fifteen years ago, when Dante's motto of "Leave all hope behind, ye who enter here" was the common verdict of the profession in regard to any operation involving the cortex.

In the *Index-Catalogue of the Army Medical Museum* there are reported 22 cases of direct injury to the heart, all of which lived over three hours; 17 lived over three days; 8 lived over ten days; 2 lived over 25 days; 1 died on the fifty-fifth day, and there were three well-authenticated recoveries. Dr. S. S. Purple, of New York, gives in the *New York Medical Journal* (vol. xiv, pp. 411–434), an account of a recovery from a wound penetrating both ventricles (confirmation of the diagnosis by post-mortem nine years subsequently), and a tabulated list of 42 cases which survived injury for from thirty minutes to seventy days. Dr. C. E. Lavender, in the *Proceedings of the Medical Association of Alabama* (1851, pp. 104–181), reports a recovery from an incised wound of the heart, and Dr. C. L. Ford, in the *New York Medical Record* (1875, p. 173), cites a case of buckshot injury with recovery. From these statistics, and they are only a partial list of those recorded, it seems that the heart is capable of resisting traumatic interference to a certain degree and of fulfilling its function in spite of more or less injury.



X. Wound of exit.

If this be so under such unfavorable circumstances as in neglected wounds, why should not the parallel hold good in surgery, when every advantage is seized and little left to chance?

There are three main objections to surgical interference with the heart: 1. The danger of stopping the cardiac action. 2. The question as to the possibility of starting pulsation if it cease; and 3. The danger of the entrance of air into the circulation.

In the first place it remains to be seen whether the application of sutures would check the heart's action. If it would, which is not proved, the question of restarting the heart would have to be settled. As for the third objection, it has been shown experimentally that this is not so great a factor as has been supposed. Drs. Hare and De Schweinitz, of Philadelphia, have done much work along the line of experimental cardiac surgery. Whether their results have been published I do not know, but they have demonstrated that the intravenous injection of large quantities of air is not necessarily fatal.

If, then, a heart may sustain a grave injury and perform its function for so long a period as five days, or even five hours, why should not some remedial measures be possible and allowable, as the present view is that all direct wounds of the heart are necessarily fatal sooner or later, and that no hope, or practically none, lies in a policy of non-interference.

In view of the statistics quoted, it might at least be open to discussion whether a surgeon might not open the pericardium, clean out the clots, close the wound in the heart-wall, and give his patient a chance of recovery. It is no more improbable now than was the removal of a tumor from the motor area of the brain in the recent past.

THERAPEUTIC NOTE.

FORMALIN IN THE TREATMENT OF CHANCROIDS AND VENEREAL WARTS.

By H. R. GAYLORD, M.D.,
RESIDENT PHYSICIAN IN THE PHILADELPHIA HOSPITAL.

In a paper read before the Microscopical Society, in Washington, January 9, 1894, Dr. W. W. Alleger speaks of having tried formalin in the treatment of chancroids, but gives no particulars other than that the lesions healed rapidly after one application of the full-strength solution. There were no bad results except pain, which, however, he considered more severe than necessary, and he intended using a weaker solution in the future.

I have had the opportunity of trying the drug in several cases of chancroids in the venereal wards of the Philadelphia Hospital. In four cases which were under observation sufficiently long to be certain that they did not relapse, the results were uniformly favorable.

Case I was a male, twenty-eight years of age. He had an active, well-defined chancroid on the dorsal surface of the inner aspect of his prepuce, which was touched with formalin, full strength, on a cotton swab. One day later a thick, brown crust had formed over the sore, and on the fourth day this separated, leaving a healthy ulcer that healed rapidly under antiseptic dressings. The pain in this case was not severe, and no anesthetic was used.

Case II was a male, forty-six years of age. He had multiple chancroids on the inner aspect of the prepuce, varying in size from a pin-point to a quarter of an inch in diameter. These were carefully touched with the full-strength solution, which produced severe pain, lasting several minutes. One week from the institution of the treatment the entire prepuce was free from chancroids, except two small areas which had been overlooked. These were then treated in a similar manner,

with the result that they, too, entirely disappeared by the end of the following week.

CASE III was a female, twenty years of age. She had a chancroid the size of a penny on the inner aspect of the left thigh, one inch from the labium. This was treated with formalin, in a 20 per cent. solution, and the application was repeated in twenty-four hours. The patient complained greatly of the pain of the first application. The second was preceded by the application of a 10 per cent. solution of cocain, with the effect of decreasing, though not entirely relieving the pain. Five days from the first treatment the chancroid had decreased in size to that of a pea, but the center was still active, and was again touched with a 10 per cent. solution. Ten days from the first treatment there was nothing left but a scar.

CASE IV was a male, twenty-four years of age. He had fifteen chancroids distributed over the penis, the scrotum, and pubic eminence. He had been in the hospital two months, had had his prepuce laid open, and two buboes were open and suppurating. This mass of infection had made but slight progress under the usual antiseptic treatment, and he was in a deplorable condition.

On September 13 the chancroids on the penis were dressed with a 10 per cent. solution of formalin, and the buboes had gauze saturated with a 1 per cent. solution laid over them.

On September 14 I dressed the buboes with a 5 per cent. solution; on the 15th and 16th, with a 5 per cent. solution; and on the 17th with a 3 per cent. solution. The pain had become so severe at this point that treatment was discontinued.

On September 20 the buboes were again dressed with a 5 per cent. solution of formalin. The pain produced by this dressing was so acute that I reduced the strength of the solution to ½ per cent., and used this for three days more, when I found it necessary to discontinue the dressings entirely.

During this treatment the improvement of the chancroids on the penis and of one of the buboes was most marked. Two large chancroidal areas healed entirely, and the bubo mentioned formed a superficial slough, which came away, leaving a healthy granulating surface, which is now nearly healed. The extreme sensitiveness which the patient developed to the pain produced by the drug was very unusual, and was so marked toward the end that a ½ per cent. solution could not be borne without the use of opiates.

CASE V was a male, forty-two years of age. The penis was covered with venereal warts arising from the preputial fold and glans. These were touched with formalin, full strength, and on account of the large surface covered produced intense pain.

In four days the warts were reduced to less than half their original size, and on a second application of a full-strength solution they disappeared entirely in five days more.

The results in these cases show that the best results are obtained when full-strength solutions can be used, and then one application is usually sufficient.

The pain produced by the full-strength (40 per cent.) is not markedly greater than that produced by solutions above 10 per cent. Pain, while excessive, can be deadened by cocain, when it is probably not more severe than that caused by nitric acid. The drug should not be applied over large surfaces except in weak solution. When continued for a protracted period of time it tends to lead to an intolerance on account of the pain produced.

Formalin recommends itself for office-use when the patient is anxious for speedy relief and is willing to endure the pain. The fact that the active principle of formalin is a gas would seem to indicate its use in buboes which are open, as it acts on the deepest recesses of the wound. The formation of the crust, however, which it produces, in one case, at least, prevented drainage, and in this way delayed the result.

MEDICAL PROGRESS.

The Bacterio pathology of the Tooth-pulp.—As the outcome of a study of the pulps of 250 diseased teeth, MILLER (*Verhandl. d. deutsch. Odontolog. Gesell.*, Bd. vi, H. 1, 2; *Centralbl. f. Bakteriol. u. Parasit.*, Bd. xvi, No. 10, 11, p. 447) formulates the following conclusions: The infectious processes of the tooth-pulp are associated, with but few exceptions, with mixed infection, cocci and bacilli being almost equally represented. Somewhat less frequently long, thin threads and spirals are found. Bacilli and threads with spores are also sometimes present, but not frequently. The microscopic examination of cover-glass preparations alone justifies the assumption that micrococci especially participate in the suppurative process. The bacteria find their way to the pulp principally through carious dentine, even a thin layer of which suffices to protect the pulp from infection. Infection of the pulp through the circulation, while conceivable, is scarcely capable of direct demonstration. The pulp is predisposed to infection by the action of the products formed in the carious dentine, such as acids and ptomains. Forms of bacteria, particularly spirals, not capable of cultivation, play a prominent part in the production of disease of the pulp. A considerable number of cultivable bacilli have been found in connection with disease of the pulp; but, as a rule, they possess no special pathogenic activity. The typical pyogenic cocci, the staphylococcus pyogenes aureus and albus, and the streptococcus pyogenes, are but rarely found in pus in the pulp. On the other hand, a number of cocci, particularly a closely related group that induce suppuration in mice, are found. In spite of careful search the presence of the pneumonia-coccus could not be detected. The activity of the cocci found in the pulp is increased by co-existence of putrefactive processes. A putrid condition of the pulp, whether the presence of bacteria in the body be demonstrable in pure culture or not, is always a dangerous source of infection. The putrefactive processes in the tooth-pulp are to be ascribed to various forms of bacteria. The putrefactive products are not always the same. In addition to gaseous substances there occur others whose nature is deserving of further study.

Fatal Poisoning by Sewer-Air.—WEBBER (*Lancet*, No. 3708, p. 686) has reported the case of a girl four years old, who for two days had complained of sore-throat and difficulty in breathing. Immediately previous to

this the child, in common with the other children of the family, had suffered from what the parents described as mumps, during recovery from which the other symptoms appeared. The parents complained of constant bad smells, and on inspection the origin of these was found in a small court-yard in the back of the house in which the cesspit of the adjoining house was situated. This was furnished with an inspection-hole, the cover of which, a flat stone, fitted badly, and from which sewer-air escaped. It was stated that when the cesspit became very full the sewage forced its way beneath the cover into the court-yard. Several members of the family in the adjacent houses had for some time suffered from anemia and occasional sore-throat. The little patient appeared anemic and ill. On examination the tonsils, faucial interspace, and pharynx were found covered with muco-pus. The tongue was thickly coated with a creamy-white fur and a purulent discharge oozed from the anterior nares. The submaxillary glands were slightly enlarged. The temperature was 102° and the pulse 110. The local condition improved upon the administration of four minims of tincture of ferric chlorid every four hours and the application to the throat and nose of a boric-acid solution. The child, however, continued weak and anemic. In the course of a week she made complaint of pain in the abdomen, which on examination was found to be moderately full. The liver was uniformly enlarged, smooth, and slightly tender, the edge rounded and reaching downward to a level of two inches above the umbilicus; the dulness commenced above at the sixth rib, and tenderness was complained of on percussion over the lower ribs. The area of splenic dulness was not increased. The child continued in this collapsed condition and albumin appeared in the urine. Amid symptoms of profound asthenia death took place two weeks after the onset of the first symptoms. An autopsy was not permitted.

Syphilitic Cerebral Arteritis.—As a result of an anatomico-pathologic and clinical study, Charrier and Klippel (*Revue de Médecine*, 1894, No. 9, p. 792) arrive at the conclusion that syphilitic cerebral arteritis is the most frequent of the specific arteriopathies. Anatomically the process may be an obliterative or an aneurysmal one. When the obliteration or the aneurysm involves a large artery at the base of the brain there may result apoplexy and death, by thrombosis of the basilar artery or meningeal hemorrhage. When the arteries affected are of moderate size or when the obliteration is incomplete grave and often incurable hemiplegia may result. When the morbid process is not extensive and involves the small arteries the symptoms are not alarming, although so-called syphilitic aphasia may occur. When the morbid processes is widely distributed over the arterial system there may be present both specific lesions and those of a diffuse peri-encephalitis. Clinically these lesions give rise to paralyses of hemiplegic type analogous to those observed when the affected arteries are of moderate size, or the obliteration is incomplete, or when the alteration is less extensive and involves the smaller vessels; but the symptoms approach in character those of general paralysis. This last condition, however, must not be confounded with the pseudo-general paralysis resulting from the existence of an insular meningitis of gummous nature. Whatever the form of lesion, the treatment should be prompt and energetic. As soon as syphilis is suspected mixed treatment should be instituted, including the use of inunctions of mercurial ointment in quantities of from 60 to 90 grains daily, the administration of potassium iodid in doses of 90 grains the first day, 130 the second, and gradually increasing until 240 or 260 grains are taken in the course of twenty hours. Tolerance is more readily established when large doses are administered then when small ones are given.

The Treatment of Rupture of the Uterus during Labor.—Wasten (*Bolnitschnaia gaseta Botkina*, No 24; *St. Petersburger med. Woch.*, 1894, No. 36, Supplement No. 8, p. 46) has reported the case of a nonipara in which, following the delivery of a stillborn child with the forceps, a rupture of the uterus was found. The woman was in a condition of collapse, the abdomen distended, the fundus uteri two-fingers' breadth above the umbilicus. The ligated umbilical cord protruded from the vulva. Digital examination disclosed a laceration of the anterior wall of the uterus, through which the placenta had gained entrance into the abdominal cavity. Celiotomy was at once undertaken, and some liquid blood and the placenta surrounded by clots were removed, while the ligated umbilical cord was withdrawn from the vagina. As evidences of septic infection were present, and it would have proved difficult to suture the margins of the wound in the uterus, supra-vaginal amputation of the viscus was decided upon. The stump was returned to the abdominal cavity, and a drainage-tube was passed through Douglas' cul-de-sac into the vagina. The abdominal wound was sutured. The laceration was 6.5 cm. long and extended obliquely downward and to the left upon the anterior aspect of the uterus from near the fundus.

The general condition following the operation was satisfactory, although for two weeks the temperature was elevated and remittent in character, gradually, however, subsiding to the normal. On the sixth day after the operation a malodorous vaginal discharge set in, which was found to depend upon an endocervicitis. The drainage-tube was removed on the eighth day, the sutures on the eleventh, and the wound was found healed by first intention. The patient ultimately recovered perfectly.

A Case of Akromegaly with Autopsy.—Bonardi (*Arch. Ital. di clin. Med.*, 1893, Punt. ii; *Centralblatt f. Chirurgie*, 1894, No. 34, p. 816) has reported the case of a man seventy-five years old, in whom the head, hands, and feet had from youth undergone progressive enlargement, and who stated that his father had suffered similarly. The eyelids were thickened, the nose was large and broad, the lips thick and muscular, the tongue immensely large and with difficulty protruded, the lower jaw greatly increased in size, measuring 30 cm. (11.79 in.) from one angle to the other; the circumference of the head was 61 cm. (24 in.); the larynx was also greatly enlarged; the vertebral column was markedly kyphotic. The enlargement of the right hand was greater than that of the left. That of the feet appeared to involve particularly the soft parts. There was dulness on percussion over the manubrium sterni.

Death took place as a result of cardiac asthenia. The sella turcica was found to be of normal size and the hypophysis cerebri not enlarged. The tongue was 7 cm. (2.75 in.) thick and weighed 210 grams (6.75 oz.). The thyroid gland was atrophic; the retrosternal lymphatic glands were found to be enlarged. The entire arterial system was in a high degree atheromatous.

THERAPEUTIC NOTES.

Bone-marrow in the Treatment of Leukemia.—BIGGER (*The Lancet*, No. 3708, p. 682) has reported the case of a lad, twelve years old, who came under observation at the age of six years, suffering from splenic enlargement and anemia. During a period of six years he had from time to time had courses of arsenic and iron iodid. Under this treatment the anemia had always improved, but until recently the enlargement of the spleen had not varied. Within a period of some two months the disease had manifested a more active character, and the boy was rapidly sinking into a critical condition. The spleen became much larger than before, and completely filled the left half of the abdomen, extending into the iliac fossa and across the middle line for two or three inches. Associated with this enlargement there were very rapid emaciation and marked anemia, accompanied by an icteric tinge of the surface. To these symptoms were added diarrhea, pyrexia, and frequent attacks of epistaxis. The pulse was rapid, and there were dyspnea and palpitation on the slightest movement. There was no enlargement of the lymphatic glands. In spite of full doses of arsenic and iron the anemia and wasting progressed, and the case assumed an almost hopeless aspect. The boy was now provided with a supply of bone-marrow, which he ate spread upon thin slices of bread. For the first two or three days the result did not appear to be satisfactory, as the spleen became more tender and complaint was made of acute pain over the splenic area. The pain was relieved by hot fomentations and soon passed away, and the spleen became less tender. By the end of the first week of the new treatment the patient looked and felt so much better that there was no doubt of the advisability of continuing it. At first there was some repugnance toward the raw marrow, but this soon passed off, and there was no difficulty in getting down two or three slices of bread thickly spread with marrow, three or four times a day. The improvement in the boy's condition after the first week was little short of marvellous. The anemia and jaundice disappeared, and the skin and mucous membranes acquired a healthy color. The symptoms due to the anemia at the same time passed off, and in three weeks the boy was able to walk about without shortness of breath or palpitation. The temperature also became normal. The spleen diminished in size, and at the end of two weeks the lower edge had receded to a level with the anterior spine of the ileum, and the inner edge did not extend beyond the middle line. After a month of treatment the boy was better than for a long time, and the spleen continued to diminish in size. Some ten weeks later the boy appeared perfectly well, and the spleen had become normal in size.

Bone-marrow in the Treatment of Pernicious Anemia.—DANFORTH (*Chicago Clinical Review*, vol. iv, No. 1, p. 1) has reported a case of pernicious anemia in which recovery seemed hardly possible, but in which excellent results were brought about by the administration of bone-marrow. This substance was at first administered in capsules, and subsequently with the food, but later the following mode of preparation was pursued: The anterior extremities of calves' ribs were comminuted, so as to thoroughly expose the cancellated tissue, and the fragments were placed in a jar and covered with glycerin, to the influence of which they were exposed for three or four days, being occasionally agitated. At the end of this time the liquid was strained through flannel, and the resulting fluid presented a reddish, syrupy appearance without pronounced odor and with very little modification of the ordinary sweetish taste of the solvent. This preparation was administered in doses of a teaspoonful three times a day, together with five drops of the official solution of potassium arsenite. As in the course of a few days the sweetish, sickly taste of the glycerin extract became disagreeable, and the stomach began to rebel, the following combination was employed:

Solution of potassium arsenite .	2½ drams.
Acid sodium phosphate . .	3 ounces.
Extract of bone-marrow . .	8 "

Of this a dessertspoonful was given after each meal. This combination proved entirely satisfactory, and the patient steadily gained in health, strength, and spirits, and in a short time presented every indication of restoration to former vigorous health. The hemoglobin rose from 35 to 80 per cent., and the red blood-corpuscles underwent a corresponding increase in number.

Lactophenin as an Antipyretic.—JAQUET (*Correspondenzblatt für Schweizer Aerzte*, May 1, 1894) has employed lactophenin in forty-two cases of various kinds, including pneumonia, influenza, erysipelas, typhoid fever and florid pulmonary tuberculosis. In all the drug acted as a reliable and agreeable antipyretic; in doses of from 50 to 75 cg. (7.7 to 11.5 gr.) it caused a fall of temperature, even in the case of erysipelas. In one case a dose of 1 gram induced a fall of temperature from 104.3° to 98° F., its action being continued for eight hours. A certain amount of stupor followed the administration of the drug, but this did not persist for any considerable length of time. In addition to its antipyretic action lactophenin is a sedative and hypnotic in doses of from 80 centigrams to 1 gram (12 to 15 gr.).

Idiosyncrasy to Topical Applications of Tannic Acid.—KRUGER (*Deutsche med. Woch.*, 1894, No. 18; *St. Petersburger med. Woch.*, No. 36, p. 331) has reported a case in which the employment of a 1 per cent. solution of tannic acid as a nasal douche was followed by the appearance of redness of the face, injection of the conjunctivæ, increased lachrymal and nasal secretion, redness of the fauces, of the soft palate, and of the epiglottis and entrance to the larynx. There was besides complaint of occipital headache, ringing in the ears, ocular pressure, tension of the gums, and a sense of dyspnea. The symptoms receded spontaneously in the course of two hours.

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THE DUTY AND PRIVILEGE OF MEDICAL EXAMINING BOARDS.

DURING the past few years there has been a marked extension of the method of State examination for license to practise medicine. This must be encouraged by the commendation of every physician. But it may not be amiss to warn the examiners that they are likely to fall into a grave error. The examinations are, so far as we can learn, entirely written. This seems right and proper for the protection of the examiners and the safety of the applicant. But these written examinations are also, so far as we can learn, conducted from written questions requiring nothing of the applicant except his pen and the correct answer. The questions entail no examination of anatomic material, no physiologic examination of the living body, no chemic or microscopic examination of the excretions or secretions, and no clinical or pathologic examination of actual diseased conditions.

The effect of this Chinese-like method of examination at the writing-table alone is beginning to be felt by medical educators. The text-book system of study is increasing in medical schools. Cramming is becoming as virulent a malady in them as it was in our literary colleges when the sciences were first made an obligatory part of their courses. As we look over the field of medical education we cannot help admitting the evident benefit which examining boards have conferred in whipping the poorer schools into line. But they have a duty also in encouraging the better schools. Now they measure and record the low-water mark of medical education. It would be equally salutary if they would measure and reward superiority.

In a recent conversation with a prominent examiner upon the method of these examinations, he seemed to appreciate the desirability of examination by means of actual physical and chemic diagnosis with all the appliances of the consulting-room, but he feared the expense. This expense ought not to be considerable. If a hundred students were to be examined, ten small rooms could be provided in addition to the writing-room. In the first, a healthy man should be placed with the necessary appliances for examination as for life-insurance. A blank should be at hand leading to the required examination, and the first applicant should be allowed such time as this examination ought reasonably to consume. The examination finished and the report written, the applicant should pass to the second room and write the result of his examination of such clinical case as he finds there. This case and other cases should be selected from the hospital or dispensary. They would be willing to submit to these examinations for the fee which every State can well afford to pay. Some care must of course be used in the selection of these cases, but no more than ought to be used in selecting the questions presented. In each clinical examination-room should be at hand the material and apparatus for the examination and a suitable blank to be filled out, with the result of the examination, the diagnosis, the prognosis, and the indications for treatment. It is evident that all kinds of medical and surgical cases are not adapted to the purposes of this examination; and it is equally obvious that the patient must be protected by an attendant from any careless, rough, or dangerous methods of examination at the hands of the student. We regret to say that lately, presumably through conscious or unconscious imitation of our German neighbors in their clinics, many students in American medical colleges have seen rough and almost inhuman, certainly unchristian and undemocratic treatment of hospital and dispensary patients at the hands of their teachers.

In the second, third, fourth, fifth, and sixth rooms also, the applicant would perhaps find in succession

heart-disease, tuberculous pneumonia, dilatation of the stomach, and lead-poisoning. In the seventh room he would find a basin containing a pathologic lung on which a written description and diagnosis with illustrative drawings would be required. In the eighth, ninth, and tenth rooms other means of testing the ability of the applicant to diagnosticate, say, carcinoma, from the mounted specimen, and again two or more forms of nephritis from the urine and the accompanying written histories. The reader will at once see what an impetus to correct medical education such an examination would surely give. It would rebuke, through the failure of its students, those schools that have no laboratories and no clinical teaching in the true sense of teaching. It would bring into prominence the value of biologic study as a preparation for medicine. It would put before the medical student real acquirements, instead of parrot-like memory, as the essential for a license to practise medicine, and it would give true pedagogic methods in medical schools an ascendency over the traditional methods of the past century.

This much surely the medical examining board ought to do. It is a duty to the citizens of the State; it is justice to the better class of medical colleges; it is a privilege which no other body possesses.

WAR MADE UPON MEDICAL AND HYGIENIC BARBARISM IN OHIO.

STRANGE and wonderful as it may seem, the cause of medical civilization is being upheld by Ohio. The State cannot get a Medical Practice Act passed by the State Legislature out there, but by some hook or crook it seems that a law has been put on the statute-books prohibiting the adulteration of food, beverages, and medicine. We suppose the quack aristocracy that stuck their tongues into their cheeks and roared derision at the medical profession never suspected that this law could be applied to their infamous cure-alls, "patent medicines," "bitters," and whiskeys. But the Ohio Dairy and Food Commission, with headquarters at Cincinnati, discovered the applicability of the general terms of the law, and also—*mirabile dictu*—discovered some moral courage, and putting both to use they are marching to the courts of justice the grocers and druggists who are the distributing-agents for the concocters of fraudulent drugs and articles of food. It is noteworthy that these local grocers and druggists, instead of throwing the blame upon the manufacturers, seem inclined to espouse their cause and to fight the commissioners. So far has corruption come! The law and its execution is plainly directed against the manufacturer, and only secondarily against the distributer, and because in no other way can the State reach the rascals. One of the commissioners is reported as saying some time ago:

"We have brought about ninety cases, and not one of them has been decided against us. That is the record for the last six months, but it is likely to be eclipsed by the results of the next half-year. Our work is only fairly begun."

The arrests have been for selling as pure, or without proper notices, according to law, such articles as vinegar, oleomargarin, fruit-jellies, preserves, lemonade, milk, grape-juice, Vin Mariani, Paskola. The commissioners' expert in chemic analysis first buys these articles, analyzes them, then prosecutes the clerk or proprietor of the store who sold them to him.

Massachusetts, we believe, has a similar law, but we have not heard of any serious attempt to execute it in the case of such things as the vile compounds foisted upon the gullible public as the great promoters of health and curers of all diseases. It is a somewhat curious psychologic puzzle to understand how it is that in Massachusetts, where a learned (?) professor in Harvard College joins hands in upholding the quacks and helps them to succeed in killing a proposed medical-practice act, and in Ohio, where a similar delectable set rules the Legislature—in these two States, there should be such laws against the scoundrels, and that in Ohio they should, as CARLYLE would say, succeed in getting themselves executed. The rest of us are bound down in abject slavery. The law of libel, or the absurd fear of it, holds over the heads of publishers and editors a sword that, it is said, would chop heads clean off "with neatness and dispatch," should a word be whispered in objection to the ring-rule of the patent-medicine syndicates and the manufacturers of secret nostrums. If a suggestion of the law of libel were not sufficient to throw us into "conniption fits" of fright, the threat of a cessation of advertisements is quite enough to make us scuttle to our holes like frightened chipmunks. Thank heaven for one man and one journal that will speak out fearlessly and welcome the threatened lawsuits. We do not always agree with the brave editor of the Cincinnati *Lancet-Clinic*, but in this crusade we cry him Godspeed with all our heart and with all our lungs.

EDITORIAL COMMENTS.

Ophthalmologic Tricks.—Even the oculists are mortal and peccable! We do not know how many times it has come to us very directly that patients with cataract, well advanced, incipient, or even only imagined, have been "treated" for it systematically and locally, in expectation of its absorption, the treatment extending over months, or even years, with constant payment of fees. This is the homeopathic trick *par excellence*. We have never except once heard of an "allopath" doing it. It is psychologically interesting to see that the mind has sectarian "lines of cleavage" in its scoundrelisms as well as in its therapeutics. In ophthalmic tricks the "allopath" can certainly rival his erring homeopathic brother. His is the far more common attempt to cure a case of reflex conjunctivitis or blepharitis, due to eye-strain, by the local application of astringents, etc., or by aqua destillata (and the applications always must be made by the physician), continued until the patient's purse or patience are one or both exhausted. Another "money-maker" is humoring the popular mistake in nomenclature which supposes the "scales" along the lid-edges in certain forms of blepharitis to be "granular lids," and the long-continued treatment of trachoma is instituted when there is not the slightest sign of the disease present.

But the wiliest and perhaps the most common, as it is the most profitable, stroke is that of treating *muscæ volitantes*. Many patients are frightened by the "dark spot before their eyes," get to watching it, and think it is the beginning of blindness or of some dire disease of the eyes. If they fall into the hands of a fellow whose motto is "*Medicine is Business*" he will humor their error, and, systematically or locally, pretend to treat this little symptom until some honest man will brush the morbid fear away with a laugh. We are glad to believe the ophthalmic tricksters are few and the honest men are many, but we are sorry to be compelled to confess that the few sneaks do exist. And they are much better known than they themselves suppose. Hospital positions, long tails to names, even professorships, do not hide the facts or lessen the disgrace. Patients will travel and will talk—sometimes maliciously, sometimes errorfully, but sometimes also truthfully.

Examination of the Eyes of Motormen, Engineers, etc., is a suggestion well worthy of commendation. Without such a safeguard it is more than possible that some of the accidents occurring may be due to a defect of vision on the part of the men in charge of the trolley-cars. A high degree of ametropia would certainly lessen the precision and quickness with which the cars should be stopped in order to avoid accidents. Leaving out of consideration the direct danger in any specific instance, it is beyond question that such an ocular defect has the effect of dulling the general sensibility of the mind and making the entire man as a nervous mechanism less prompt in perception and reaction. The speed with which these cars are run, and the need of lightning-like accuracy and certainty in controlling them, demand the most perfect nervous mechanism possible.

In the case of railway locomotive-engineers and brakemen there is prevalent to-day a widespread mistake or superstition that is endangering the lives of many people. We allude not to the admitted need of testing the color-sense of such men, but to the non-admitted and despised need, on the part of higher railway officers, of ametropic tests for the men. Ametropia both directly and indirectly, especially of high degree and if coupled with presbyopia, greatly lessens the accuracy of perception, both ocular and mental, of engineers and of brakemen. Glasses would greatly increase this accuracy in many cases, but however atrocious the defect, the men do not dare to wear glasses while on duty, because of the knowledge that if they do so they will be discharged because of poor eyes. Officials stupidly prefer them to continue work with poor vision rather than with glasses that make the vision practically normal.

Midwifery among the Somalis.—The *Indian Medical Record* (Vol. vii, No 5, p. 145) cites as an instance of barbarous midwifery, without a parallel, the practice in vogue among the Somalis of Africa. When a Somali woman in labor experiences any difficulty, such as obstruction to the passage of the fetus, her relatives call in the assistance of their Wadad, or priest, who is a kind of Jack-of-all-trades, and exercises a universal sway over the tribe. To assist the delivery the priestly doctor thrusts into the vaginal canal a knife, which, being of local manufacture, is rough and black, and is never overclean, and with a rapid sawing movement cuts anteriorly until the blade comes in contact with the arch of the pubes. This obstetric operation is expected to give instantaneous relief; and the hemorrhage necessarily entailed is considered to be a "good sign," according to the explanation vouchsafed by the "learned doctor" to the elderly relatives. If this fails to effect the delivery, as it always does, the poor patient is blamed for the result as being the possessor of an impure soul. She is now gotten ready for a second and the last operation of relief. The priest-surgeon then thrusts the knife again into the vagina and cuts backward until the posterior wall of the pelvic cavity resists the knife. This is really and truly the finishing stroke, as it finishes off both the mother, to whom death must be undeniably a relief from such brutal interference, and the child, mutilated, though yet unborn.

Unilateral Fibrinous Rhinitis.—While it has been shown that many, if not the majority, of cases of so-called fibrinous rhinitis are due to the presence and activity of diphtheria-bacilli, it is equally admitted that this affection may arise in the absence of such bacilli. Even fibrinous rhinitis due to the presence of diphtheria-bacilli is to be differentiated from true nasal diphtheria. The latter invariably arises by extension of the diphtheric process from contiguous parts, while the former may develop as a primary and independent condition, although it too may follow in the sequence of pharyngeal diphtheria. On the other hand, fibrinous rhinitis is not characterized by extension of the exudative process to the pharynx; and the constitutional phenomena are less pronounced in rhinitis than in diphtheria. In illustration of the fact that the mere presence of microörganisms is not sufficient to generate disease, it is interesting in this connection to refer to a case of fibrinous rhinitis in a nine-year old boy who had not had diphtheria, but whose

mother had suffered from an attack of the laryngeal variety, reported by ABEL (*Deutsche medicinische Wochenschrift*, 1894, No. 35, p. 693), and in which diphtheria-bacilli were found in both nares, although false membrane formed in but one.

Who are the Editors, the Publishers, etc.?—We wish to protest against the custom of some English medical journals (we suppose they are English) of leaving contributors and correspondents in entire ignorance not only as to who their editors are, but also as to who their publishers may be, and even as to where the journal itself is published. In our prized contemporary whose only fault is excessive urbanity, good nature, and remarkable scholarship in reference to what it calls "American spelling"—the *Medical Press and Circular*—there is not a line from beginning to end to tell us where it is published or by whom it is published and edited. This excessive modesty is complimentary to the hidden and nameless divinities that preside over the destinies of medicine and of the medical press. It forms a delightful contrast, perhaps, to some of our American examples of medical journalism in which the editor's name and that of his journal are the chief or only prized thing in the valueless journal; but, seriously, *omne ignotum pro magnifico* is about as ridiculous a blunder—at least for perplexed correspondents. It may be characteristical, and even scientifical—perhaps our charming contemporary would prefer us to spell *characteristickal* and *scientifickal*.'—but it is not sympathetical or hygienical.

The Medical Department of Tulane University requires, as we are glad to learn, an attendance upon "three courses of lectures of not less than six months each in three separate years." The implication in a recent editorial comment that it is "a two-year college" was an error, based upon misinformation, which we are happy to correct.

SELECTION.

THE ENCOURAGEMENT OF PAUPERISM ILLUSTRATED BY THE TOWN OF WATERBURY, CONN.

From 1869 to 1893, inclusive, the disbursements for official alms in Waterbury, Conn., aggregated $483,043. If the expenses of administration and the cost of new almshouses were included in these figures the rotund total for the quarter of a century would approximate $600,000. The increment in alms during the twenty-five years has strikingly outstripped the increment in population and in the grand list. In 1869 the total relief amounted to $6,799, while in 1893 it was $38,452, an increase of 462 per cent. The population of the town is estimated to have been 12,834 in 1869 and 35,500 in 1893, the growth being 176 per cent. The grand list on which the tax of 1869 was levied was $6,900,005, while twenty-five years later it was $10,819,836, the expansion being a laggard 56 per cent. In other words, while the pauper expenditures in Waterbury during the twenty-five years bounded forward 462 per cent. the census increased but 176 per cent., and the grand list, striking a leisurely pace, grew but 56 per cent. Your committee are not convinced that changes in the character of our population or in the condition of our industries justified a *per capita* pauper tax of $1.08 in 1893, as against 52 cents in 1869.

A comparison with other communities serves still further to emphasize the lavish nature of Waterbury's distribution of public revenues among the poor. It is, in sooth, lamentably true that several large Connecticut towns jauntily jump over Waterbury's too high standard; but Prof. McCook has cleverly and conclusively demonstrated that Connecticut—a State famed for its inventive skill and its industrial genius—leads the world in its dispensation of public alms. But venturing beyond the borders of this Commonwealth, we find that while the annual cost of poor relief (exclusive of $7,147.84 for hospitals) was 88 cents *per capita* in Waterbury last year, it was only 20 cents in the city of Providence in 1892. The figures for the manufacturing city of Pawtucket, R. I., are 37 cents as against our 86. The *per capita* tax for the support of outdoor and indoor paupers in Springfield was 51 cents in 1892. In most other New England cities (outside of Connecticut) whose population, like our own, is distinctly industrial, the burden of pauperism falls lightly on the shoulders of the taxpayers, if Waterbury's rate be taken as a basis of comparison.

Passing from municipalities to commonwealths, we find that the *per capita* cost of poor relief was 67.8 cents in Massachusetts in 1891; 55.3 cents in New York in 1890; 33.4 cents in Pennsylvania in 1890; 32.1 cents in Ohio in 1891; 35.9 cents in Michigan in 1889; 36.7 cents in Indiana in 1890-91; 35.9 cents in Illinois in 1889; 24.2 cents in Wisconsin in 1889; and 23.7 cents in Minnesota in 1891. Our own pauper tax towers loftily above these modest figures.

The names of eighteen families which were the recipients of aid in 1893 appeared on the town-records for the first time ten years ago. Nineteen families in last year's immortal 396 poured profuse and profitable petitions for assistance into the ears of the Selectmen nine years ago. Two families began their career of permanent pauperism eight years ago, and sixteen families seven years ago. Not less than 105 families, representing 367 persons, were aided continuously through the fiscal year of 1893, while sixty-two were relieved from six to eleven months.

It is a recognized principle that "people who have once drunk from the fountain of public relief acquire an insatiable appetite for its waters." Age cannot wither nor custom stale their infinite importunity. The step from temporary to permanent pauperism is short and alluring, and it is easier than the traditionally easy descent into Avernus.

It is unreasonable to suppose that under a plan of personal examination into the character and condition of the applicants, three proprietors of resorts of ill-fame could, between February, 1893, and January, 1894, have made victorious raids on the Selectmen's office. It is a matter of regret to your committee that Waterbury's system of public poor-relief is so elastic that under it the public revenues have several times been diverted to promote the practice, prosperity, and profits of prostitution.

At the first conference which we had with the Selectmen we were informed, with engaging frankness, that the recipients of orders could buy ice-cream with them if they chose. We heard of a woman in January who, having obtained a $2 grocery-order, desired to use it exclusively for sugar. When the grocer conscientiously advised her to get only 50 cents worth of sugar and to expend the remaining $1.50 on other articles she waxed indignant and threatened to transfer her future patronage to some less critical merchant. As several of the dealers on whom orders are drawn are licensed liquor-sellers it is not an improbable assumption that Waterbury occasionally furnishes some of its outside poor with a brand of groceries which can best be carried home in a jug, and which, if consumed in sufficient quantities, is less liable to cheer than to inebriate.

The local public expenses for the support of patients at hospitals for the sick are steadily increasing. Each patient sent to the Waterbury hospital by the Selectmen involves a weekly tax of $6, while the New Haven hospital charges $5. For that reason, in cases in which hospital-treatment will be required for a protacted period, the town finds it cheaper to send its patients to New Haven.

During the past ten years the disbursements for the hospitals-account have expanded 133 per cent., but we are advised that the Selectmen encounter considerable difficulty in keeping them down to the present figure. The requests for admission to the sick-hospitals at the expense of the taxpayers are constant and numerous, and eternal vigilance, supplemented by a discriminating judgment, is necessary to prevent the development of costly abuses. We think that, except in emergency cases, no patient should be admitted to a hospital for the sick without the written approval of the town-physician.

The fact that not less than forty-eight of the inmates are victims of inebriety challenges attention. In fact, the superintendent informs us that in reality intemperance is the cause of pauperism in a larger number of cases than the records indicate. Many of those who have tarried at the wine have tarried very long and very industriously. A majority of these forty-eight too bibulous persons are not old as age is reckoned by the calendar. Five of them are between twenty and thirty years of age; seven between thirty and forty; twelve between forty and fifty; fifteen between fifty and sixty; seven between sixty and seventy; while only two are on the sunset side of threescore years and ten. Their average age is forty-nine years. Many of these chronic drunkards will, in the natural course of events under existing conditions, become permanent and expensive public burdens. Looking at the problem exclusively from the standpoint of taxation and of public economy, we inquire whether it is not worth while for the town to test the value of medical treatment for inebriety on a few of these slaves of dipsomania. If a reasonable probability exists that some of them can be reclaimed to independence and to productive citizenship, the dictates of dollars and cents suggest the propriety of making the experiment.

The problem of women who, in the last stages of pregnancy, go to the almshouse to be delivered of their children, usually illegitimate, is not easily solved. Several such cases occurred last year. The women usually leave the institution when they are able to work. The almshouse is thus converted into a lying-in hospital for the convenience of indigent women whose virtue is not stable and continuous, and licentiousness is indirectly promoted. The question is a delicate one, and we have no specific recommendation to offer, although we venture to inquire whether the detention of such mothers in the almshouse for at least six months, during which time they might develop a permanent affection for their children and also by hard work reimburse the town for the expense incurred by their admission, would not be advisable.

The superintendent when asked if opportunity was provided for the employment of the able-bodied inmates when the weather was unsuitable for outdoor labor, replied in the negative.

The number of capable workers at the institution is, as we understand, and as is the case in most almshouses, larger in winter than in summer; for not infrequently men who are not inclined to have much commerce with hard work find the almshouse an agreeable place for hibernation and for obtaining the maximum of winter comforts in exchange for a minimum expenditure of energy. In the spring they migrate.

We have considered at length the operations and the results of Waterbury's system of official relief. Under that system the support of the public poor is imperiously exacting from taxpaying pockets large levies of money which might otherwise be employed in productive industries. That system has created in the community a vast amount of hereditary and chronic pauperism. It has encouraged the spirit of mendicancy and dulled the sense of personal responsibility. It has taught scores of people who, under ordinary conditions, ought to be self-supporting, confidently to rely on official bounties and to give their independence and ambition in exchange for the gratuities that are distributed from the City Hall. It has, in many cases, filched from the industrious and independent for the benefit of the idle and thriftless, and it has not infrequently rendered the condition of the pauper easier than that of the self-supporting taxpayer. It has naturally engendered certain administrative defects which have fostered the general evil and conduced to unnecessarily large expenditures. Under that system and, indeed, under any system of public relief, that delicate personal ministration on the part of the almoner and that feeling of gratitude on the part of the recipient, which are the most helpful features of true charity, are absent: for the dispensation of public relief is a contest in which the applicant battles to get a large grant while the official fights to make the dole small.

We are profoundly convinced that Waterbury should aim to secure the ultimate abolition of outdoor relief. Brooklyn has abolished it. Baltimore has abolished it. Philadelphia has abolished it except for medicine and medical attendance. Other progressive cities, appreciating the grave social diseases that are caused by the microbe of liberal official charity, are rigorously curtailing their outdoor alms.

The dictates of civilization demand that the impotent poor who are not able to earn their own subsistence shall not be permitted to starve. But, as Prof. Francis A. Walker has pointed out, "it is of the highest impor-

tance that pauperism shall not be made inviting; that, on the contrary, the laborer shall be stimulated to the utmost possible exertions, only accepting relief as an alternative to actual starvation." Churches, voluntary charitable organizations, relatives, and private benevolence are, in general terms, competent to relieve the distress of the provident and deserving poor of Waterbury, while, in our opinion, the worthless indigent ought not to be assisted outside of the almshouse. This goal, although it cannot be reached by a short cut, ought to be kept steadily in view. We are confident that many outside paupers, if they were required either to go to the almshouse or be deprived of further relief altogether, would decline to accept the hospitalities of the institution and would find unsuspected resources by which an independent living could be obtained. Indeed, we do not believe that, in the long run, a general reduction of outdoor aid would largely increase the population of the poorhouse. Dr. Gladden, an authority on scientific philanthropy, says: "The abolition of outdoor relief involves a moral change in the community, upon the whole subject of dependence, which finds expression not only in the homes of the poor but also in the almshouses. If you want to reduce the number of dependents in your institutions, cut off the distribution of outdoor relief."

CHARLES G. ROOT,
THOMAS D. WELLS, } Committee.
E. G. KILDUFF,

—*Selections from the Report of the Special Committee on Public Poor-Relief in Waterbury, Conn., 1894.*

SOCIETY PROCEEDINGS.

NEW YORK STATE MEDICAL ASSOCIATION.

Eleventh Annual Meeting, held in New York, October 9, 10, and 11, 1894.

FIRST DAY—OCTOBER 9TH.

DR. ZERA J. LUSK, of Wyoming County, reported a case of lateral lithotomy for the removal of a large wire nail, which was alleged to have been in the bladder for four years. The nail was exhibited.

Dr. Lusk also reported a case of traumatic epilepsy, which was of interest because by trephining over the speech-center and removing an epidural clot the man was restored to health.

DR. E. D. FERGUSON, of Rensselaer County, in discussing this case, cautioned against expecting to find the lesion exactly where the anatomic or physiologic center was located, and reported a case from his own practice in illustration.

DR. DARWIN COLVIN, of Wayne County, said that cases of gunshot wound causing epilepsy were quite rare, according to the *Medical and Surgical History of the War of the Rebellion*, and that the case in which he had trepanned a soldier for this condition was the only one there reported as having recovered.

DR. EDEN V. DELPHEY, of New York County, exhibited a new non-conducting speculum made of hard rubber, which he had found useful for giving a post-partum intra-uterine douch. It resembled a very large one-bladed Sims speculum, the handle of which was in the form of a gutter, through which the fluid drained off into a pail suspended from the end of this handle. With it very hot water could be used without discomfort to the patient from the speculum becoming too hot.

Dr. Delphey also narrated some of the interesting points in a lawsuit in which he had been made one of the defendants. He had been asked by Dr. A. H. Goelet to give an anesthetic to a man of fifty-two years, who had a gangrenous finger that required amputation. The patient had refused consent to the operation unless an anesthetic were given. The urine had been examined and found to be normal. With the Esmarch inhaler not more than one dram of Squibb's chloroform was given, and then ether was substituted, being administered in a paper cone and towel in the usual way. Shortly after beginning the ether, the patient without any warning suddenly stopped breathing. Artificial respiration by the Sylvester method was at once begun, and kept up for half an hour, and only abandoned after the heart had ceased to beat. The autopsy was made by the deputy coroner, who reported finding pulmonary edema, pachymeningitis, old adhesions of the lungs on the left side, and incipient disease of the kidneys. The medical expert for the plaintiff alleged that no conscientious physician would administer chloroform to a patient having incipient disease of the kidney. It is important to note that the Judge, Judge C. H. Truax, in his charge, instructed the jury to take no notice of the fact that the family of the patient had objected to the giving of an anesthetic, for he held that they had no right to do so, especially as the patient was competent to decide that matter for himself. A verdict was rendered for the defence.

In the course of the discustion, DR. E. D. FERGUSON called attention to the fact that it had been held, at least in Pennsylvania, that the physicians who are present at an operation merely as witnesses could be made co-defendants in a suit of this kind, and DR. D. COLVIN asserted that the previous signing of a contract by the patient releasing the physician from damages in case of an untoward result would not save him if it could be shown that he had not taken all ordinary precautions or had not pursued the usual treatment.

DR. J. W. S. GOULEY, of New York County, presented a communication, in which he gave his reasons for offering the word "typhlenteritis" as a substitute for "appendicitis."

DR. JOSEPH D. BRYANT, of New York County, reported four "Interesting Cases of Appendicitis," all of them secondary, and each illustrating a certain type of the disease.

In discussing the paper, DR. F. W. GOODALL, of Vermont, said that from a recent short experience in palpating the appendix, as advocated by Dr. G. M. Edebohls, he had become convinced that it was a method of examination that was both easy and useful.

DR. J. G. TRUAX, of New York County, said that, in his opinion, if the first attack of appendicitis were properly treated, not one case in a thousand would have a second attack. By proper treatment he meant placing the patient in bed, applying an ice-bag over the ileo-cecal region until all induration had disappeared, keeping the patient all this time, and for two or three weeks

longer, on an exclusively milk diet, and then for five or six weeks more on farinaceous food.

Dr. H. O. Marcy, of Boston, defined appendicitis as a proliferation of the bacillus coli communis locked up in a small process of the bowel. In a large experience, he said, he had never felt sorry for having operated for appendicitis, but he had frequently had occasion to regret the opposite course. He had been the first to operate in recurrent cases during the interval, and he still favored this practice.

Dr. E. D. Ferguson reiterated a statement made a year ago, to the effect that in his experience the vast majority of cases had only had a single attack.

Dr. Bryant replied that from 60 to 80 per cent. of those having appendicitis primarily would recover without operation. The mortality in the operative cases was about two per cent. In ordinary primary attacks, in the absence of symptoms distinctly demanding operation, he would, before operating, wait for about forty-eight hours, or until the fever indicated the possibility of suppuration.

Dr. W. H. Park, of New York County, read a paper entitled "Recent Studies on Diphtheria and Pseudo-diphtheria." He explained the methods now in vogue by the Board of Health for determining by bacteriologic examinations whether cases reported are true or false diphtheria. Cases were also cited to show that healthy persons could carry the bacilli and infect others with the disease without themselves succumbing to it. It had been found that if care were taken to keep the throats of persons exposed to pseudo-diphtheria in a healthy condition there was little risk of contracting this disease. Experiments carried on at the Willard Parker Hospital had shown that warm salt solution was one of the very best solutions for irrigating the nose and throat of diphtheric patients—even better than hydrogen dioxid solution. Calomel-sublimations had not been found antiseptic in the nasal passages. A short account was then given of the new method of treating diphtheria by the antitoxin, and it was stated that competent observers were well agreed as to the excellent therapeutic results obtained from it and as to its furnishing immunity from the disease to healthy persons for a period of a few weeks.

Dr. John Cronyn, of Erie County, followed with a short paper on diphtheria, in which he presented his reasons for believing the disease to be in the first instance a constitutional disease.

Dr. Herman M. Biggs, of New York County, said that he had recently talked with the able men who were studying the antitoxin treatment in Berlin, and they were of the unanimous opinion that the treatment had already passed beyond the experimental stage. In their last series of tracheotomy-cases treated in this way they had had over 75 per cent. recover. It had been found that the dose of antitoxin must be graduated according to the weight, age, and size of the patient.

Dr. A. Palmer Dudley, of New York County, exhibited three patients on whom he had performed Cesarean section, and described the technique he had employed.

Dr. Joseph Taber Johnson, of Washington, D. C., read a paper on "Hysterectomy for Uterine Fibroma by Baer's Method," and reported nine successful cases treated by this method. They had all had a remarkably rapid and easy convalescence. Other similar methods required more time for their performance.

Dr. W. R. Pryor, of New York County, read a paper on "Hysterectomy in Pus cases," in which he advocated the removal of the uterus as well as the pus-tubes, claiming that unless this were done in the more severe cases a large percentage would be only temporarily relieved of the symptoms for which the salpingo-oophorectomy had been done. The removal of the uterus added but little to the shock and danger of the operation.

Dr. H. O. Marcy, of Boston, made some remarks on "The Anatomy and Surgical Treatment of Inguinal Hernia in the Male," and illustrated them profusely by means of the stereopticon. He emphasized especially the importance of restoring the obliquity of the inguinal canal if one would effect a permanent cure.

Second Day—October 10th.

Dr. Douglas Ayres, of Montgomery County, read a paper on "Fractures of the Inferior Extremity of the Humerus, involving the Articulating Surface," and reported two cases occurring in children. He advised elevation of the limb, cold applications, careful immobilization of the limb in the bent position, and an early resort to passive motion.

Dr. A. J. Van Vraken, of Albany County, emphasized the importance of basing the diagnosis on an examination made under an anesthetic, and also the advisability of confining children to bed as the only way of properly controlling them.

Dr. John Cronyn said that injuries of this class were especially likely to lead to suits for malpractice. For this reason he had been in the habit in such cases of telling the family at the outset in the presence of witnesses that it was rare to get a perfect result, and that consequently if they knew of any surgeon whom they thought might be able to treat the case more skilfully than he he wished they would send for him at once.

Dr. Joseph S. Gibb, of Philadelphia, read a paper on "The Stearate of Zinc Compounds in Atrophic Rhinitis," which will be published in a future number of The Medical News.

Dr. Dwight L. Hubbard, of New York County, said that while he could from personal experience vouch for the value of stearate of zinc, he felt that the chief factor in the treatment described in the paper was the efficient cleansing of the parts.

Dr. William H. Robb, of Montgomery County, reported a case of suppurative cellulitis following an injury of the hand, in which in spite of antiseptic dressings, and later on amputation of the arm, the cellulitis spread rapidly upward, and the patient finally died. He attributed the peculiar behavior of this case to the fact that the injured hand had been wrapped up in germ-laden woolen rags for nearly four hours before he had seen it, and that in this way the microbes of suppuration had had time to penetrate deeply into the lymphatics before the application of the first antiseptic dressing. The moral was obvious.

Dr. Herman M. Biggs, of New York County, opened the formal "Discussion on the Prevention of Tuberculosis." He said that for the past eight months the New York City Board of Health had treated tuberculosis as a

communicable disease, and had compelled notification when tuberculosis had developed in public institutions. The chief means of prevention were: (1) notification; (2) advice against marriage of tuberculous individuals; (3) destruction of tuberculous matter, and limiting its dissemination; (4) improvement of sanitation generally; (5) removal of delicate children from families in which tuberculosis had already developed; (6) governmental inspection of dairy cows, and of animals slaughtered for food, and the sterilization of milk from doubtful sources; (7) the maintenance of a proper sanitary condition in all public conveyances; (8) the establishment of special hospitals for the advanced cases of tuberculosis.

DR. LAWRENCE FLICK, of Philadelphia, continued the discussion, illustrating his remarks by lantern views. He exhibited statistical maps showing plainly that health-resorts had been an important factor in propagating tuberculosis. His photographs of small alleys and the interiors of tenements showed very well the overcrowding and the unsanitary nature of the ordinary home-life of these people. He dwelt with emphasis on the influence of hospitals for tuberculous patients on the mortality from tuberculosis. Thus, since such hospitals had been in vogue in England, there had been a noteworthy diminution in this mortality-rate—an argument at once powerful as regards the contagiousness of tuberculosis, and in favor of the more general erection of such special hospitals. In the city of Philadelphia, since 1884, there had been a reduction of 6 per cent. in the mortality, or a saving of nearly one thousand lives a year. There had been a reduction of nearly one-third in the mortality in Berlin since the discovery of the contagious nature of tuberculosis. About one hundred years ago in Naples tuberculosis had been extremely common and malignant, but owing to the enactment of very stringent measures looking to the compulsory isolation of tuberculous patients, the mortality had been wonderfully reduced, until at the present day it was only about one-tenth per thousand in the cities, and practically *nil* in the rural districts.

DR. J. H. HUDDLESTON, of New York County, spoke of the technique of examining the sputum for tubercle-bacilli, and dwelt on the importance of concentrating the sputum.

DR. JOSEPH D. BRYANT, of New York, recounted the preliminary steps that had been taken since 1887 by the Board of Health in connection with the prevention of tuberculosis, and how these efforts had finally culminated in the recent and now well-known action of the board in declaring tuberculosis a contagious disease, and requiring it to be reported as such by the authorities of all public institutions.

DR. E. G. JANEWAY, of New York County, sent a communication, in which he pointed out that examination of the sputum for tubercle-bacilli was not always a reliable guide in diagnosis. He also suggested having separate rooms and distinctive bed clothing in hotels for the use of tuberculous patients only.

DR. J. G. TRUAX, of New York County, said that he did not consider it quite safe to employ tuberculin as a diagnostic test.

DR. BIGGS, in closing the discussion, said that Professor Koch had recently told him that tuberculin was used as a routine measure in the Berlin hospitals in all doubtful cases, and that if properly used it was perfectly harmless. If used in *pure* tuberculosis it appeared to be curative, whereas, it was harmless if used in cases of mixed infection.

DR. J. BLAKE WHITE, of New York County, in a paper on "The Diagnosis and Treatment of Pleurisy," expressed the opinion that strapping the chest in this disease would be likely to result in permanent changes in the lungs and pleura. He had not found the salicylates especially useful except when there was a rheumatic element present. Aspiration should be performed as soon as serous effusion was detected. The open incision without resection of the rib was ample in empyema.

DR. FRANK VAN FLEET, of New York County, in a paper entitled the "Treatment of Retinitis Albuminurica in Pregnancy, from an Ethical Standpoint," presented quite fully both the legal and the moral aspect. Quoting from the Penal Code, he showed that the law did not justify the performance of abortion, except when it was necessary to save the mother's life; but he argued that as marked retinitis did not occur until nephritis was quite advanced, many would contend that the mother's life was really in jeopardy by reason of the renal complication.

THIRD DAY—OCTOBER 11TH.

DR. JOHN G. TRUAX, of New York County, in a paper entitled "Some Facts About the Treatment of Typhoid Fever," put forward as the best of many methods he had tried, the administration of mercury and salol, in conjunction with the persistent application of an ice-bag to the ileo-cecal region.

DR. FREDERICK HOLME WIGGIN, of New York County, read a paper on "Intestinal Anastomosis," in which he reported a clinical case and also results of twenty experiments on dogs. He objects to the Murphy button (1) because a foreign body is left in the intestine, which is sometimes retained, necessitating a secondary celiotomy for its removal; (2) the spring of the buttom may be made so strong as to cut through the coats of the bowel; (3) the weight of the button may anchor the intestine in a flexed position, and so cause obstruction, as in a case narrated; (4) there was some danger of the lumen of the button becoming plugged with hard fecal matter; and (5) the sharp edges of the lateral openings in the button are very liable to cut through the bowel. Dr. Wiggin prefers Maunsell's method, which he says is suitable for any portion of the canal, and can be safely and easily performed by an experienced surgeon.

DR. PARKER SYMS, of New York County, read a paper on "The Arthropathies of Locomotor Ataxia," and exhibited some patients. The pathologic changes, he said, involved both the bone and the soft parts. The joint-disease appears very suddenly, and the movements are abnormally great, and are associated with some of the early symptoms of locomotor ataxia.

DR. J. R. JANVRIN, of New York County, in a paper on "The Early Diagnosis of Tubal Pregnancy, and Primary Laparotomy in such Cases," enumerated, among the important signs, the patulous condition of the os; a tipping of the uterus laterally away from the side on which the fetal sac is located; an elastic swelling corre-

sponding to the location of the ovum; and an exquisite tenderness in this locality.

Dr. Austin Flint, of New York County, was elected President of the Association for the ensuing year.

CORRESPONDENCE.

MID-SYSTOLIC MITRAL MURMURS.

To the Editor of The Medical News,

Sir: I have just finished reading the interesting note by Dr. J. N. Hall, of Denver, upon an "Undescribed Heart-murmur." He is undoubtedly correct, that the murmur occurring in the middle of the cardiac systole is rare; but it is not undescribed. In 1892 I read a paper before the Association of American Physicians upon "Mid-systolic and Late-systolic Mitral Murmurs," and published it later in the *American Journal of the Medical Sciences* for September, 1892. In this I described three cases, in one of which the murmur occurred immediately before the occurrence of the second sound; so close to it, in fact, that it at first seemed almost coincident with it. It could properly be called a late-systolic murmur, analogous to the mitral diastolic murmur which occurs immediately before the first sound in many cases of mitral stenosis. In the other two cases the murmur was of longer duration, and was more properly mid-systolic in nature.

I hardly think Dr. Hall's explanation, that there was a separate action of the right and left ventricles, explains my cases. It seems much more probable that the condition is exactly analogous to that which obtains in the mitral diastolic murmurs. As Bristowe aptly puts it, there is often a "potential presystolic murmur," *i. e.*, the vibrations caused by stenosis occur during the whole of the diastole; but they do not always reach the ear, or they reach it at different times on different occasions, consequently a case may one day exhibit a murmur which occupies only the first part of the diastole, while upon the next day it may fill the whole period of it, or only become audible during the latter part. The actual condition of the valve is, of course, the same on all occasions. So in the mitral regurgitant murmur also. The regurgitation is taking place during the whole of systole, with the exception of the very short "persistence-time" at the very end of it, described by Martius. The vibrations, however, do not always reach the ear, as is well known. Consequently, on some days or under some conditions the mitral murmur is not audible, although the regurgitation is undoubtedly going on. Similarly there is no reason why we should not fail, for some unknown reason, to hear the first part of the regurgitation, although we do hear the later portions of it. It is true that this seldom occurs, while in the murmur of mitral stenosis it is common.

That this is the most plausible explanation of the mid-systolic mitral murmur seems indicated by Dr. Hall's own case. When his patient was first examined she presented a mitral murmur which had nothing unusual about it as to its time, while at the second examination the peculiar rhythm was noticeable. In two of my own cases this same variability was a very prominent feature, and was, in fact, one of the chief reasons for the explanation I have proposed.

Yours truly,

J. P Crozer Griffith.

123 S. Eighteenth Street, Philadelphia.

NEWS ITEMS.

Foot-ball Casualties.—"On the 22d ult., in a match at Watford between the West Herts and Royal Engineers teams, a player (a forward) fractured his knee, and another player (a center forward) also sustained an injury to his knee. On Saturday last, during a match on the recreation ground, Driffield, between the Driffield and Selby Mispah teams, the Driffield full-back fractured his leg. On the same day in a match at Kinver between the Kinver and Kingswinford Clubs a player received injuries from which he died on Monday last. While playing a match on Wednesday last at Brunham between the Reading and Brunham Clubs a player fractured his right leg."—*Lancet*, October 6, 1894, p. 831.

From a few New York and Philadelphia papers that have come to our notice we gather the following:

"On Saturday, October 20th, at Philadelphia, in a game between teams of the Drexel Institute and Hamilton School, O. F. Knight, a student of the Drexel Institute, a man twenty-five years old, of fine physique and prominent in athletic sports, collided with another player and fractured his skull so badly that he will probably die."

"Of the men who have been hurt, five are undoubtedly laid up for good. They are Connor, Richardson, and Dunlop, all of whom had their collar-bones broken; Gray, who broke his leg, and Acton, who dislocated his arm. Hallowell got into a hard scrimmage, and was taken from the field. It was found that he had sprung a cartilage over his rib."

"E. Bennett, of the Harvard School eleven, fractured his left leg while playing in Central Park, and W. McGahey, of the Brooklyn Polytechnic, broke his thigh in a game at Eastern Park."

"Lehigh's foot-ball eleven is in a deplorable state from having played Princeton, Yale, and Pennsylvania within twelve days. The work was too much for them, and the whole truth of the matter is, several of the players show signs of growing stale."

"Houston and Budd, the tackles, are laid up with injuries. Yates, who played such a good game at end in the second half of the Pennsylvania game, will be unable to play again this year on account of a broken collar-bone received in the game on Saturday; Saltzman, the quarter-back, is still laid up, and Keys at center is also in a bad condition. Fitzgerald at full-back has been unable to play since the Pennsylvania game."

"Mr. Deland said Saturday that Mackie, the veteran guard, would also be in harness later, but the big fellow himself says differently.

"He thinks he has played long enough with the team, and says that even if he wanted to play his father would not let him."

"For over a week, Brown, the stocky little half-back from Newton High, has been laying off on account of an injury to his knee. Yesterday he started in again with the 'varsity, only to be taken from the field before the

practice was half over, having again badly hurt his leg. Besides these two accidents, Weld strained his knee so badly that he too had to leave the game and be carried to the club-house."

"The eleven of Stevens Institute has disbanded for the season owing to injuries received by its best players."

The Tri-State Medical Society of Iowa, Illinois, and Missouri held its third annual meeting at Jacksonville, Ill., October 2d and 3d. Papers were read by Drs. J. H. Etheridge, Bayard Holmes, Boerne Bettman, Robert H. Babcock, F. Henrotin, and W. F Hubbard, of Chicago; John Punton, Kansas City; James A. Close and Emory Lanphear, of St. Louis; W. B. LaForce, of Ottumwa, Iowa; E. O. Sisson and F. B. Dorsey, of Keokuk, Iowa; Frank B. Norbury, Anne H. McFarland, Carl E. Black, and L. A. Malone, of Jacksonville, Ill.; Alfred Meyer, of Kankee, Ill.; W. M. Catto, of Decatur, Ill., and Charles W. Rook, of Quincy, Ill.

The following officers were elected:

President: Dr. James Moores Ball, of St. Louis.

Senior Vice-President: Dr. Bayard Holmes, of Chicago.

Junior Vice President: Dr. L. A. Malone, of Jacksonville, Ill.

Treasurer: Dr. C. S. Chase, of Waterloo, Iowa.

Secretary: Dr. Frank P. Norbury, of Jacksonville, Ill.

St. Louis was selected as the next place of meeting, which is to be held April 2 to 4, 1895.

Dr. John A. Wyeth, of New York, has consented to deliver the address on Surgery.

Dr. Fred. Byron Robinson, of Chicago, will deliver the address on Gynecology, and Dr. David Cerna, of Galveston, Texas, will speak on "Recent Advances in Therapeutics."

Monument to Charcot.—The pupils and former associates of Charcot in Paris and throughout France are engaged in raising a fund for the erection of a bronze statue of him in the Salpêtrière. This movement is now receiving cordial and material support in Germany, in England, and in Italy.

It has therefore seemed desirable to the New York Neurological Society that the profession in America join in this testimonial.

For this purpose the Society has appointed a committee consisting of Drs. Edward D. Fisher, E. C. Seguin, M. Allen Starr, Charles L. Dana, and C. A. Herter, to bring the matter to the attention of the profession and to receive contributions, which will be duly acknowleged and forwarded to the Central Committee in Paris.

New Medical, Pharmaceutical, and Dental Directory.—George Keil, 1715 Willington street, Philadelphia, has now in press the third edition of the *Medical and Dental Registry-Directory and Intelligencer* of Pennsylvania, New York, New Jersey, Maryland, Delaware, and the District of Columbia. It will present a complete list of the medical, pharmaceutical, and dental practitioners in the States named, with place and date of graduation; also professional educational institutions, hospitals, societies, etc. Medical men who have just located or removed are requested to forward their addresses, with desired information, to the publisher.

The Treatment of Appendicitis.—At the last meeting of the Board of Managers of the University Hospital the Director was authorized to set aside certain beds to be used by Professors William Pepper and J. William White for cases of appendicitis, those gentlemen being engaged in a special investigation of the symptoms, treatment, and pathology of that disease. Each case admitted to these beds will thus be studied from the outset with reference to both its medical and its surgical features. It is hoped that the results may aid in clearing up the prevalent differences of opinion as to this malady.

The Serum-Treatment of Diphtheria.—According to dispatches in the daily newspapers the Budget Committee of the French Parliament has resolved upon an appropriation of 100,000 francs with which to test the efficacy of the new diphtheria-serum.

A dispatch from Berlin says that Professor Virchow has expressed his opinion that the blood-serum prepared by Dr. Behring has the effect to protect the person taking it from the diphtheria for weeks, and possibly a few months, but says that it remains to be demonstrated whether the effect is permanent or really curative.

Medico-Legal Society.—A joint session of the Medico-Legal Society and the Section of Medico-Legal Surgery will be held at the Academy of Medicine, New York City, on November 15, 1894, at 8 o'clock P.M. precisely. The following papers will be read: "Hygienic Training of Men in Charge of Railway Trains," by Dr. Granville P. Conn; "Expert Examination of Plaintiff in Damage Cases, when Ordered by the Court,' by Dr. George Chaffee; "The True Line of Duty of the Railway Surgeon," by Clark Bell, Esq.; "Medical Witnesses," by Dr. R. S. Harnden.

Prof. Carl Fraenkel, of Marburg, has been elected to the Chair of Hygiene in the University of Halle, rendered vacant by the transfer of Prof. Renk to Dresden. Prof. Fraenkel will not assume the duties of his new position until some time next year, his place in the interim being occupied by Prof. Behring, of the Institute for Infectious Diseases in Berlin.

Prof. Oscar Fraentzel, a distinguished pupil of Traube, died at Berlin on September 18th, after a protracted illness, at the age of fifty-six. He contributed generously to medical literature, more particularly in the department of internal medicine.

Dr. Hunter Robb, late assistant in gynecology at the Johns Hopkins Hospital, has been elected to the chair of gynecology in the medical department of the Western Reserve University.

The American Academy of Railway Surgeons will hold its first meeting in the parlors of the Grand Pacific Hotel, Chicago, Ill., on Friday and Saturday, November 9 and 10, 1894.

Dr. John M. Fisher has been elected one of the gynecologists to the Philadelphia Hospital, in succession to Dr. E. E. Montgomery, who resigned after a long term of service.

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ORIGINAL ARTICLES.

ABORTIVE AND AFEBRILE TYPHOID FEVER.[1]

BY SAMUEL A. FISK, A.M., M.D.,
OF DENVER, COL.

IN introducing, for discussion, the possibility of the existence of a condition which may be spoken of as "abortive" typhoid fever, or a condition presenting the symptoms of typhoid fever without the existence of the fever itself, or even with a subnormal temperature, I am well aware that I am opening a wide range for discussion, and one that may be seriously questioned. At the outset, however, I wish to urge the necessity in medicine of ever keeping one's eyes open to existing facts, and endeavoring to find an explanation for them, rather than accepting as law and gospel statements which however backed by authority, are not necessarily final.

The books describe a *prodromal* stage of typhoid fever of greater or less length, succeeded by from five to seven days of *invasion* with its gradually ascending temperature, two weeks of *fastigium*, then the *crisis*, and the decline by *lysis*. While we all recognize that this stands as a fair representation of a type, we see every day, in actual experience, variations from this type. We are coming to learn that nothing is so fixed in medicine that it cannot be changed. We have seen hydrogen sulphid and tuberculin throned and dethroned. The years are not far past since drainage was a *sine qua non* in all surgical dressings. The theory of self-limitation of disease is itself becoming limited. There are not many of us who, suffering from an attack of acute articular rheumatism, would willingly twirl our thumbs and philosophize with Flint that the duration must necessarily be twenty-six days. We have all seen cases that had the initial symptoms of croupous pneumonia that did not go on to fruition. We have even seen wide variations in the course of diphtheria. And so with typhoid fever, we are coming to learn that there are wide variances in its manifestations; that a condition may occur without the presence of any elevation of temperature, which in other respects must be dignified by the name of "typhoid" or "enteric" fever. This fact is now being recognized in the text-books. Osler, in his *Practice of Medicine*, p. 15, says:

"There are cases decribed in which the general features of the disease have been present without the existence of fever. They are extremely rare in this country. No instance of the kind has come under my observation."

In Pepper's *System of Medicine*, vol. i, p. 299, we find reference to a description of afebrile typhoid by Liebermeister, which says:

"Many of them never show during the entire course any rise of temperature, or occasionally a slight elevation only. Enlargement of the spleen could generally be detected and occasionally an unmistakable rose-colored eruption. The action of the bowels was usually irregular; sometimes there was diarrhea; sometimes, on the other hand, obstinate constipation. The other symptoms are prostration, pain throughout the body, often headache, persistent loss of appetite with more or less swollen, furred tongue, and marked diminished frequency of the pulse, which disappeared with convalescence, while its quality was not appreciably altered."

The long duration of an apparently trifling indisposition is considered as especially characteristic.

Strube writes of an outbreak during the siege of Paris in 1870: "In many cases the temperature was subnormal."

The existence of abortive typhoid is perhaps more generally recognized. We find ample authority for believing in its existence. Strümpell, for instance, writes:

"The name belongs to cases which begin with severe symptoms and high fever, as if they were going to be grave, but in which these violent symptoms disappear after a few days and give place to a rapid convalescence."

Niemeyer, Lebert, Osler, J. C. Wilson and Fagge all recognize the existence of abortive typhoid. It seems singular to meet with such a general acquiesence in this condition when formerly it was thought that typhoid or enteric fever must necessarily run a well-defined course of invasion, fastigium, crisis, and decline, and when we had the theories of self-limitation so thoroughly dinned into us. Our ideas with reference to this affection are likely to be still further modified; for there are those who are advancing the belief, supported by pathologic evidence, that typhoid fever may exist without the presence of intestinal lesions. Karlinski cites three cases of this kind and DuCazel reports another. The last was that of a patient who for three weeks presented the symptoms of

[1] Read before the Colorado State Medical Society, at Denver, June 20, 1894.

classic typhoid fever—headache, epistaxis, meteorism, rose-spots, congestion, fever, albuminuria, with a development of bilateral pneumonia. The case terminated fatally. Upon post-mortem examination the lungs were found almost completely hepatized and the spleen enlarged, while the intestines and the mesenteric glands were perfectly uninvolved. Bacteriologic examination of the spleen, however, demonstrated the presence of typhoid-bacilli in pure culture. The case suggests the query, as pointed out by one of our medical journals, whether some more accurately descriptive name than that of "typhoid" or "enteric" fever is not needed.

We all recognize that a diagnosis in disease is based upon a grouping of the symptoms, and that by a process of careful elimination we arrive at the condition we think to be most probable, to which we give a name, and which condition we assume to represent some pathologic change. We further recognize the fact that the chain of evidence is not invariably complete, and that we do not always have all the symptoms present that are given in the text-books as belonging to a given affection. So it is with typhoid fever. We are coming to learn that diarrhea is not an invariable accompaniment of the affection; that in fact we frequently find a condition of constipation, or something akin to it. The enlarged spleen is not always to be determined. Conditions may exist to mask its detection. If it be present skilful manipulation may fail to determine its existence.

We know that great variations exist with regard to the element of temperature, and opinions may differ with reference to the presence or absence of rose spots, though in my own experience I have seldom found them wanting, even if not invariably in large numbers. Thus we see that if our diagnosis must be squared by the four so-called cardinal symptoms of "pea-soup" stools, temperature, enlarged spleen, and rose-spots we may be in error, especially with reference to the cases of afebrile typhoid. Our opinion, then, must be based upon a broad consideration of the case. We must give due weight to the presence or absence of typhoid in the community. This is a factor of no little moment, as in epidemic seasons we see wider variations from the normal. We should consider the prodromal symptoms, the method of invasion, the feeling of malaise, indisposition to work, the furred tongue, the loss of appetite, the headache, the pains in the back and throughout the body, the recurrent nose-bleed. And here it does not seem to me that we should insist upon a torrent of blood. "It may not be so deep as a well nor so wide as a church-door, but 'tis enough—'twill serve." We do not always insist that a person shall bleed a pint or a quart from the lungs in order to say that he has had hemoptysis. And so if we inquire carefully with reference to these typhoid cases I think we shall frequently find that they have had stains on their handkerchiefs sufficient to attract attention, even though they may not have had a full and free epistaxis. The appearance of the tongue, too, is significant. The furred center, not necessarily brownish, the peculiar beefsteak-red border, this coloration at the tip often taking a pyramidal shape. Wakefulness at night, with mild delirium, coupled with other symptoms, is often suggestive. The facial aspect is peculiar and sometimes diagnostic. The tympanites and tenderness in the right iliac fossa must be looked for, and in due season the rose-spots and enlarged spleen. One swallow does not necessarily make a summer, and one rose-spot does make a diagnosis of typhoid, but taken in conjunction with other symptoms its significance should never be underestimated. Furthermore, by way of confirmation, the convalescence should be considered. It has seemed to me that the convalescence from typhoid fever is somewhat diagnostic in itself. The brightness of expression, the peculiar luster of the eyes, the relish for food, the hunger, the rapid putting on of flesh, the loss of hair; the grouping of these conditions conducing to give a general appearance of convalescence which, it seems to me, is somewhat peculiar to this affection and which should help confirm our opinion.

My point then is that a careful diagnosis should be based on a well-considered grouping of the conditions and symptoms, and we should never exact too close a compliance with so-called cardinal rules. Autopsy, moreover, sometimes shows ulceration of Peyer's patches, with enlargement of the spleen, when typhoid has never been thought to exist. Such pathologic specimens have been presented to our medical societies.

It is to be noticed that I have used the term "abortive" typhoid, and not "aborted" typhoid. Whether the course of treatment has an influence in producing the result, or whether the attack is a natural sequence, I am incapable of saying.

A case that came forcibly to my attentiou in the summer of 1888 was one of the early ones that brought this condition to my notice. I was called to see two young men of equal age, living together in a small house in the upper end of California street. The symptoms were identical, their illnesses were synchronous, the treatment was the same. In a day or two one was dismissed as well, the temperature having come to normal and the other symptoms having cleared up. He returned to his work but was urged to be cautious. The second one ran an attack of well-defined typhoid of moderate intensity. Later on I was told that my first patient was not feeling so well, and I took the precaution to

go to his place of business and inquire, but was assured that he never felt better in his life. I was surprised a week or ten days later to be called to his bedside and to find him genuinely sick with typhoid fever. He died a few weeks later after repeated hemorrhage from the bowel. My conviction has always been that had he rested and taken care of himself at the time he was dismissed he would probably have avoided any further trouble. Such cases are not infrequent, especially in hospital-service.

I am reminded of a somewhat similar case at the County Hospital occurring in a man who came in with what was considered to be typhoid fever in the early stage and, after a week, was dismissed as well. He returned three or four weeks later to pass through a regular course of typhoid.

It is not these cases, however, that I have especially in mind. I have cited them to note the tendency. The cases that I have spoken of as abortive are such as are described by Strümpell in the quotation just given, in which he speaks of the violent symptoms disappearing after a few days and giving place to a rapid convalescence.

In making the diagnosis care must be taken to note the previous history of the case, and not to confound it with ambulatory typhoid going on to convalesence.

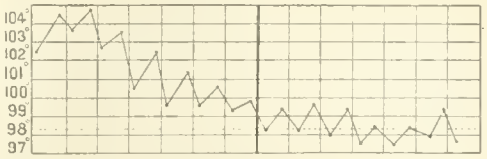
The chart that I now present (No. I) is that of a young woman, a school-teacher, who, in the fall of 1890, when typhoid was prevalent, having some prodromal symptoms, took to her bed and called me at once. The chart dates from the beginning of my attendance. The attack was probably near the end of the first week,

Chart I.

as rose-spots soon appeared. It was one of undoubted typhoid, the diagnosis being backed by the prodromes, the symptoms at the time and those of convalescence. She lost all her hair, which was a great privation, as it was her pride; she became quite stout; it was evidently a case of abortive typhoid.

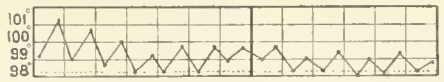
The third case (No. V), however, is one that was under my observation from the start. It is that of a young man with a tuberculous tendency, who came to this country because of his pulmonary affection. He complained

Chart III.



of malaise and symptoms that are usually defined as "biliousness." He had lived in a malarial region, and his case made me suspicious of a malarial outcropping, so that I purged him pretty vigorously and put him on

Chart IV.



Warburg's tincture, which simply aggravated his condition. After a few days he went to bed with a temperature as indicated, soon developing rose-spots and other well-

Chart V.

marked typhoid symptoms; but the subsidence of the fever, and the general improvement coincident therewith, justified the diagnosis of abortive typhoid.

From the foregoing condition it is but a step to the so-called *typhus levissimus*, or very mild typhoid, of which I introduce two charts.

The first is that of a young lady (No IV), occurring also in the fall of 1890, when typhoid was so prevalent, showing well-defined typhoid symptoms; the second (No. II) that of a man who a few years previously had had an attack of typhoid, and who was one of three cases, occurring at the same time, in the same house, one of which proved fatal with repeated hemorrhage from the bowel; the second running a well-defined course of typhoid.

These two cases are illustrative of conditions justly called *typhus levissimus*, occurring as they did

Chart II.

The second one (No. III) is also that of a school-teacher, about the same age as the first, and occurring the same season. She had undoubted typhoid, with a rapid convalescence. She was under my care from the time of going to bed. The temperature-chart here given represents the course of the illness while under observation. Some doubts may exist, however, with reference to this case, whether she may not have had the ambulatory form before going to bed, as she had been feeling poorly for some weeks before giving up.

in typhoid seasons, with typhoid surroundings, having typhoid symptoms, though mild, and the convalescence characteristic of the affection.

It is but a step further from *typhus levissimus* to a febrile typhoid. I recollect several such cases, two of them occurring in the fall of 1890.

One was in a prominent business-man of this town, who went to bed with typhoid symptoms, even to the rose-

spots. He had one or two slight hemorrhages from the bowel, and his condition was aggravated by stimulating food even as mild as beef-tea. He was kept in bed by his attack for the usual time, and never once did I find him with a normal temperature, but with a temperature somewhat subnormal and the pulse somewhat depressed.

A few months later I had another man under my care with typhoid symptoms. This attack was not attended with fever; indeed, the convalescence was exceedingly slow, and the nervous symptoms were particularly pronounced.

In the fall of 1892 I had under observation another man, who went into the mountains, where he subjected himself to considerable hardship, riding horseback, fishing, wading streams, sleeping out at night, and taking long journeys. He came back complaining of loss of appetite, of feeling tired, of lack of energy, and then went off on another trip to the southwestern portion of the State, and, while out driving one afternoon, was attacked with a severe chill, and hurried to Denver the following morning. He complained, in addition to the symptoms that I have mentioned, of loss of energy, loss of appetite, of fatigue, and of being sleepless. One thing that he noticed particularly was that for a week or so he had not been able to sleep; that he also had persistent pain in the small of his back of which he could not rid himself. His eyes were heavy and lusterless and his tongue furred. He had some diarrhea, and had been blowing some clots of blood out of his nostrils. There was tenderness in the right iliac fossa. His temperature, so far as I know, was never above the normal, and his pulse was subnormal, going as low as forty-two, forty-eight and fifty-two beats per minute. He had rose-spots in successive groups, and his spleen was enlarged.

I have repeatedly noticed in typhoid seasons patients with normal or subnormal temperatures whose condition I could only describe as typhoid upon whom treatment, at my hands, would make but little impression. These conditions I have come to regard as a species of afebrile typhoid and am learning to put the cases to bed at once and treat them as such, in which way I acquire the speediest and surest results.

Unquestionably, we shall have to divest ourselves of the belief that the typhoid state is invariably accompanied by the typhoid temperature, and we are learning that the condition to which we have given the name of "enteric" or "typhoid" fever is one that admits of wide variations from that which has been regarded as the type.

URIC-ACID LEUKOMAINS AS FACTORS IN THE ETIOLOGY OF MIGRAINE AND KINDRED NERVOUS DISEASES.

By B. K. RACHFORD, M.D.,
of Cincinnati, Ohio.

In The Medical News of May 26, 1894, I published a paper on "Paraxanthin as a Factor in the Etiology of Certain Obscure Nervous Conditions." That paper was based on the study of a patient who had had migraine all her life till she was past sixty years of age, at which time the migrainous attacks were superseded by epileptoid paroxysms, which came at about the same interval of time as the migrainous attacks had previously occurred, and produced no bad effect on the intellectual faculties. I showed, by a careful study of this case, that it belonged to the class of cases which were formerly thought to be due to an excess of uric acid in the blood, but which at the present time, since we know that uric acid is non-toxic, are left without any very definite pathology. I found that the urine of this patient passed during and just after a paroxysm contained not only an excess of uric acid, but also a *very great excess of paraxanthin*, a poisonous leukomain of the uric-acid group. I also found that the paraxanthin-solution taken from the urine of this patient, when injected into mice, produced symptoms like those from which my patient suffered. From this study I drew the conclusion that paraxanthin-poisoning, rather than uric-acid poisoning, is an important etiologic factor in producing these epileptoid attacks.

A subsequent study of this and other so-called uric-acid cases not only confirms me in the foregoing conclusion, but it has led me to believe that the uric-acid leukomains, of which paraxanthin is the most poisonous, are important etiologic factors in producing the nervous symptoms which have heretofore been attributed to uric acid. I believe that classic migraine is a leukomain-poisoning, and that there is a form of so-called epilepsy coming on late in life, often taking the place of the migrainous attacks of previous years, which has as its most important etiologic factor the very poisonous leukomain, paraxanthin. The foregoing conclusions will, if correct, be of much clinical importance. I wish, therefore, to afford an opportunity of judging of their value by presenting herewith, in connection with my previous paper already referred to, the evidence upon which they are based.

In the beginning I must express my obligations to Mr. Otto F. Bange for the assistance he has given me in this work; the investigations by him were conducted in his private laboratory and at his own expense, his only incentive being his love of science and his desire to assist me in the study of a question that not only required a great deal of time, but also much technical knowledge.

I am also indebted to Mr. Stuart Wallingford for assisting me in my private laboratory in making a number of urine-examinations. In my previous paper I gave the technique of the urinalysis and many other important facts which here have a direct bearing, but cannot be repeated.

Specimen No. 1. Two gallons of normal urine were obtained from soldiers at the Newport Barracks. This specimen was a portion of the morning urine passed by a large number of strong, healthy men.

It may, therefore, be taken to represent an average normal urine. The examination was made by Mr. Bange. The final fluid was evaporated to 8 c.c. Result: Paraxanthin was not present in sufficient quantity to be detected, and the final fluid was not poisonous to mice.

Specimen No. 2. Two gallons of normal urine were obtained as noted, and were examined by Mr. Wallingford under my direction. The final fluid was evaporated to 8 c.c. Result: No paraxanthin or other leukomains could be detected, and the resulting fluid was not poisonous to mice.

Specimen No. 3. Normal urine obtained as noted. Boric acid was added, and the fluid allowed to stand three days, and then examined by myself. The final fluid was evaporated to 8 c.c. Result: No paraxanthin or other leukomains could be detected, and the resulting fluid was not poisonous to mice.

Specimen No. 4. One quart of urine was obtained from a case of epilepsy—*grand mal.* The secretion was passed between and just after a series of severe epileptic convulsions. The patient was a boy, fifteen years of age, with a tuberculous family history. His mother attributed his sickness to a fright which he received when five years of age. For some years he has had one or more severe epileptic convulsions a day, usually occurring at night. At short intervals a large number of violent convulsions will occur during the same day, and following these severe attacks he will be quite unmanageable for several days. He cannot dress or undress himself, and his mind is hopelessly diseased. To be brief, I may say the boy is a typical case of very severe *grand mal.*

The urine was examined by Mr. Bange, the final fluid evaporated to 4 c.c. Result: No paraxanthin or other poisonous leukomains could be found, and the resulting fluid was not poisonous to mice.

Specimen No. 5. Two quarts of urine were obtained from a case of epilepsy—*petit mal.* This case was under observation at my clinic at the Medical College of Ohio for some months. The patient, a boy of ten years, had a bad tuberculous and nervous history; he was anemic and poorly nourished, and had had epilepsy for "four or five years." When he came to the clinic for treatment he was having on an average one attack a day. In these attacks the boy would lose consciousness for a few moments, and then complain of being sleepy. His mother said that at all times he was nervous and irritable, and much changed in his disposition. This boy was very much improved by treatment; so much so that when I sent him to the country (in June) he had had only one attack during the previous month. The improvement in his epilepsy was no doubt due to the improvement in his general health and strength. The treatment consisted in systematic exercise in the open air, good food, including one quart of milk each day, and syrup of iron iodid and cod-liver oil. The specimen of urine examined was obtained from this boy between and after two nervous attacks, and was examined by Mr. Wallingford under my direction. The final fluid was evaporated to 6 c.c. Result: No paraxanthin or other leukomain was found, and the resulting fluid was not poisonous to mice.

Specimen No. 6. Four quarts of urine were obtained from a case of acute mania following influenza. This patient was an overworked business man, fifty years of age. He had had a very severe attack of mania following influenza. The maniacal symptoms lasted some weeks, and then passed off. During the eighteen months following this first attack he had a number of attacks of acute mania; they would be accompanied by intense pain in the back, and would always follow symptoms of influenza. The last attack of this kind lasted two days, and it was during this time that the specimen of urine was obtained.

The urine was examined by myself. The final fluid was evaporated to 6 c.c. Result: No paraxanthin or other leukomains of the xanthin-group could be found. The resulting fluid was not poisonous to mice.

Specimen No. 7. Four quarts of urine passed by a patient during and after a severe attack of migraine. This patient was a German woman, thirty-three years of age, whom I had known for many years as a sick-headache sufferer. Her mother and one of her sisters also have the same disease. During the many years that I have known her she has often come to me hoping to get relief from these migrainous attacks, which came every two or three weeks and utterly prostrated her, confining her to bed for from twelve to twenty-four hours. At these times her stomach would reject all food, and she would suffer from intense headache. She was a great meat-eater and beer-drinker. A number of times I succeeded in making her quite comfortable and free from headaches for months at a time. The treatment at these times consisted in stopping the beer and fresh meat, giving her instead vegetables, fruit, eggs, and milk, *ad libitum.* The medicinal treatment was a dose of Carlsbad salts each morning and five drops of tincture of veratrum viride when the patient suspected an attack was coming on. When she would adhere to this treatment she suffered very much less from migraine. But always after some months of caretaking she would lapse into her old habits of eating and drinking, and the migrainous attacks would take on their former severity.

The urine was examined by Mr. Bange, and the final fluid evaporated to 10 c.c. Results: Paraxanthin and other leukomains of the xanthin-group were found in considerable quantities. The resulting fluid responded to the chemic tests for paraxanthin, and a drop of the fluid evaporated on a glass slide showed under the microscope paraxanthin-crystals, and when injected into mice this fluid produced poisonous symptoms resembling paraxanthin-poisoning. In this way the resulting fluid was shown to contain a substance which responded to the chemic, microscopic, and physiologic tests for paraxanthin. In the evaporation, other xanthin-leukomains crystallized out, but the fluid was not sufficiently evaporated to get rid of these leukomains and give a pure solution of paraxanthin, as was done in the case reported in my previous paper. The resulting fluid in this case was, therefore, a solution of the

leukomains of the xanthin-group, the most important of which is paraxanthin.

First experiment. Five minims of this fluid were injected into a full-grown house-mouse. In five minutes the mouse was very nervous, its breathing very rapid, its muscles twitching. The muscular twitching gave way to convulsive movements, and the mouse died fifteen minutes after the injection.

Second experiment. A second mouse was injected with two and a half minims of the same fluid. In fifteen minutes it did not resist handling, was apathetic, and its breathing rapid and labored. After the mouse had remained in this condition for a half-hour a second injection of two-and-one-half minims was given; three minutes later convulsive movements came on and continued till the mouse died, fifteen minutes after the last injection.

Specimen No. 8. Two gallons of urine were obtained from a patient in whom migrainous attacks were superseded by epileptoid attacks after she was sixty years of age. This is the same case so fully described in my previous paper, already referred to. The urine was passed between and for some days after two very severe attacks which occurred the same day. The urine was examined by Mr. Bange, and the final fluid evaporated to 8 c.c. Result: Paraxanthin and other leukomains of the xanthin-group were found in considerable quantities, and the resulting fluid was very poisonous to mice. From the resulting fluid hypoxanthin, xanthin, and other leukomains were eliminated, so as to have as pure a solution of paraxanthin as possible; this solution responded to the chemic, microscopic, and physiologic tests for paraxanthin.

The concentration and strength of this 8 c.c. of paraxanthin-solution is shown by its very poisonous effects on mice. If one minim of this solution was injected into the peritoneal cavity of a mouse it produced increased nervous excitability and convulsions, followed by general tetanic muscular contractions, which always terminated in death. The small quantity of the paraxanthin-solution (one minim) required to produce this effect, when compared with the non-poisonous effect of ten or twenty minims of the "resultant fluid" from normal urine, shows that in this case paraxanthin was enormously increased in quantity in the urine passed by this patient during or just after an epileptoid attack.

From the foregoing examinations and experiments the following summary may be made:

1. Two gallons of normal urine do not, by the method used, yield an appreciable quantity of paraxanthin or other leukomains of the xanthin-group.

2. One quart of *grand mal* epileptic urine passed between and after severe epileptic convulsions did not yield an appreciable quantity of paraxanthin or other leukomains of the xanthin-group.

3. Two quarts of *petit mal* epileptic urine, passed just before and after an attack, did not yield an appreciable quantity of paraxanthin or other leukomains of the xanthin-group.

4. Four quarts of urine from a case of influenza-mania, passed during the attack, did not contain an appreciable quantity of paraxanthin or other leukomains of the xanthin-group.

5. Four quarts of urine, passed during and after a severe migrainous attack, yielded considerable quantities of paraxanthin and other leukomains of the xanthin-group.

6. Eight quarts of urine, passed during and after a migrainous epileptoid attack, yielded comparatively large quantities of paraxanthin and other leukomains of the xanthin-group.

Upon the above investigations here summarized I base the following conclusions:

1. Normal urine contains such a small quantity of uric-acid leukomains that they cannot be detected in such quantities of urine as can conveniently be obtained from one person for urinalysis.

2. Many pathologic urines, including the urines in *grand mal*, *petit mal*, and influenza-mania, contain so small a quantity of the poisonous uric-acid leukomains that it is highly improbable that they act as etiologic factors in the production of these diseases.

3. Urine passed during an attack of migraine or migrainous epilepsy contains such comparatively large quantities of paraxanthin and other leukomains of the xanthin-group as to make it highly probable that they act as important etiologic factors in the production of these diseases.

At the present time there is probably no fallacy more deeply rooted in the medical mind than that uric acid and its compounds are toxic, and that they produce by their direct action on the nervous system a number of nervous diseases. The uric-acid theory of nervous disorders has never been supported by chemic or physiologic experiment. But it has been such a convenient theory to cloak our ignorance concerning the etiology of so many diseased conditions, that now we are loath to give it up, even in the light of the experiments which in recent years have demonstrated that it is non-toxic, and that it can only produce disease in a mechanical or reflex way by reason of its insolubility in the body-media. But the time has now come for us to discard, once and for all, the idea that uric acid and its compounds, by their presence in solution in the blood, can produce nervous symptoms. In accepting the non-toxicity of uric acid and its compounds we are compelled to seek another explanation for the nervous disorders which have heretofore been thought to be due to the toxicity of these substances. But in doing so we must not forget that uric acid and its compounds, by reason of their insolubility, may be pathologic factors in gravel, gout, and other diseased conditions, and that the term uric-acid diathesis is rightfully used to describe the condition in which, either from increased production or defi-

cient elimination, there is an excess of uric acid or its compounds either in the blood or in the tissues.

In some diseases, such, for example, as gout, which belong to the uric-acid diathesis, the distressing symptoms are no doubt due to the precipitation in the tissues or elsewhere of the comparatively insoluble urates; but in other diseases, such for example as migraine, which may also be classed as coming under the uric-acid diathesis, the uric acid, although it may occur in excess in the blood and urine of these cases, has nothing whatever to do with producing the constitutional symptoms. It is a sign, but not a cause of these diseases. The extensive and valuable studies of Haig and others have clearly demonstrated that there is a form of migraine and a form of epilepsy in which the excretion of uric acid and the proportion of uric acid to urea in the urine are greatly increased during the paroxysm of these diseases, but these carefully-made observations were misinterpreted to mean that uric acid in the blood was the cause of these diseases. My investigations show that in a case of migraine and in a case of migrainous epilepsy there was in the urine passed by these patients during their attacks, not only an increase of uric acid and an increase in the ratio of uric acid to urea, but there was also found a very great increase of the poisonous leukomains of the uric-acid group, and the paraxanthin-solution from the migrainous-epilepsy case produced in mice symptoms very like those from which my patient suffered.

These obervations tempt me to offer the following substitute for the uric-acid hypothesis in explaining the etiology of migraine and kindred nervous disorders.

First. Typical migraine is due to the action on the nervous centers of soluble, poisonous uric-acid leukomains. The presence of an excess of these leukomains in the blood precipitates an attack of migrane, which is terminated by their elimination through the stomach and kidneys.

Second. Leukomain-epilepsy is a form of epilepsy etiologically quite distinct from the other forms of epilepsy. It is caused by the action on the nervous centers of paraxanthin and other poisonous leukomains of the uric-acid group, which by their presence in the blood precipitate an attack. Leukomain-epilepsy usually supersedes migraine; it commonly comes on after middle life, and does not, as a rule, impair the intellect.

The foregoing is offered only as a working hypothesis, to be confirmed or disproved by subsequent work in this field.

NOTES ON TREATMENT.

In the case of migraine I got, as noted, fairly good results from Haig's dietetic treatment. No wine or malt liquors and no fresh meat were allowed, but milk, eggs, fruits, and vegetables, *ad libitum*. But in the case of leukomain-epilepsy very little good was accomplished by this treatment; however, when sodium phosphate, Carlsbad salts, or sodium salicylate was added to the treatment the patient was benefited. After some weeks without medicinal treatment this patient was placed upon potassium permanganate, one grain three times a day. At the present writing (August 12th) she has been taking the permanganate for two-and-one-half months, and has apparently derived more benefit from it than from the other medicines named. She passed a longer interval (seven weeks) without having an attack under the permanganate treatment than after any other. I am not at all sanguine about the therapeutic value of potassium permanganate in leukomain-poisoning, but only mention it here because it was suggested by the fact that I found it to be a good antidote for paraxanthin-poisoning in the mouse.

In my studies I was struck by the fact (as noted in my previous paper) that the most poisonous leukomains of the uric-acid group, viz., paraxanthin, xanthin, and gerontin, each have two atoms of O, while uric acid has three. Uric acid is, therefore, a more highly oxidized body than these poisonous leukomains. These facts suggested the use of potassium permanganate in leukomain-poisoning, because of its well-known oxidizing properties. I do not wish to offer the foregoing observations as an explanation of the action of the permanganate in paraxanthin-poisoning, but only mention them because they suggested its use in this condition. Before using the drug in the case of leukomain-epilepsy, as already narrated, the following experiments were made.

Experiment No. 1. One minim of the paraxanthin-solution obtained from the leukomain-epilepsy case + one minim of distilled water, was injected into the peritoneal cavity of a house-mouse; the mouse died from paraxanthin-poisoning with the symptoms previously detailed (control-experiment).

Experiment No. 2. One minim of the same paraxanthin-solution + one minim of a one per cent. solution of potassium permanganate was injected into the peritoneal cavity of a mouse. This mouse, although quite sick, did not have the characteristic symptoms of paraxanthin-poisoning, and, after a time, entirely recovered.

These and other experiments convinced me that the permanganate is a fairly good antidote for paraxanthin-poisoning in the mouse, and led me to try its use in the case of leukomain-poisoning from which the paraxanthin-solution was obtained. But I must say that my experience thus far does not promise any great things from the use of the drug in this condition.

I believe that in this paper I have touched upon

a field ripe for clinical research, and my only excuse for publishing observations so incomplete is that it is almost impossible for a busy practitioner to find the time to carry to anything like satisfactory completion a work that requires so much time and labor as this one does.

117 BROADWAY.

TEA-INTOXICATION.

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THE intoxicating effects of tea are not appreciated so fully as they should be, either by the indulger in its infusion or by the physician who is later called upon to combat its untoward influence on the system and to give advice in regard to its further continuation. So very little is to be found in our text-books on the subject of tea-poisoning that, unless the facilities have been such as to make a study of it possible, a recognition of the condition is far from likely. That it is a potent factor in causing functional derangements of the gravest character is well known to those who have given its physiologic action serious attention.

Of 1000 consecutive cases applying for general treatment at our largest dispensary, 100, or 10 per cent., were found to be liberal indulgers in tea, and suffering from its deleterious effects, and no one of which came for treatment of the tea-habit, but for various other complaints. They were loath, when apprised of the cause of their illness, to believe that such a harmless household commodity ever produced any bad effects.

Of these 100 cases reported,[1] 20 per cent complained of persistent dizziness, 19 per cent. of indigestion, 45 per cent. of headache, 20 per cent. of despondency, 19 per cent. of palpitation of the heart, and 15 per cent. of insomnia. Truly the foregoing is an array of troublesome symptoms of which any pernicious drug should be proud.

A much more careful and exhaustive study was made of the next twenty-five cases, which furnish us with the following report of symptoms and the percentage of their frequency:

	Years.
Oldest tea-drinker	76
Youngest tea-drinker	18
Average age of the twenty-five cases	34¾
	Per cent.
Nationality—United States	60
" Irish	32
" English	8
	Pints.
Amount drunk in 24 hours—largest quantity	15
" " " smallest "	1½
" " " average "	5

[1] The American Med.-Surg. Bulletin, Sept. 1, 1894.

SYMPTOMS (*in percentage of frequency*).

	Per cent.
Headache, simple	80
Facial or capitæ neuralgia	92
Vertigo	36
Restlessness	48
Mental confusion	48
Hallucinations	16
"Nightmare" and dreams	20
Despondency	44
Anxiety	52
Excitement	28
Insomnia	56
Palpitation of the heart	76
Nausea	60
Gastric and intestinal indigestion	56
Condition of bowels—constipation	48
" " alternating constipation and diarrhea	28
" " diarrhea	8
Sinking sensation in pit of stomach	52
Anorexia	52
Muscular tremor	64
Menses—irregular	8
" ceased	20
Pains—in back	24
" general	4
" in side	8
" in head	4
" in stomach	4
Anemia	4
Dyspnea	24
Rheumatism	16

At first glance there is apparently a great difference in the percentages of the frequency of certain symptoms in the first one-hundred cases and the subsequent twenty-five. The explanation is that the study of the twenty-five cases commenced on July 1st, and during the hot weather people drink more tea than in the colder seasons of the year, hence the higher per cent. of evil symptoms.

That we may better appreciate the power which tea is capable of exerting, a brief outline of its physiologic action on the system would not be out of place, and is as follows: No nervous depression follows its use; the action of the skin is increased while that of the bowels is decreased; it is not narcotic; it is anesthetic hypodermatically; it decreases bodily temperature; it affects the sensory system; is a general excitant of the circulation; it dilates the capillaries of the splenic arcade; it retards digestion; it is mildly diuretic; it causes irregular and feeble cardiac action; it rouses and clears the mind and stimulates the imagination; it is an antidote to alcoholism; it lessens tissue-metamorphosis; it opposes active nutrition; it is astringent; it causes a sinking sensation in the epigastrium.

There is a great difference between physiologic and poisonous effects of a drug on the system. When tea has been used for a considerable period in excess and its detrimental action has been constant, we have well-defined symptoms supervene, a few of which are such as vertigo, mental confusion, sensible palpitation of the heart, restlessness, insomnia,

hallucinations, "nightmare," nausea, neuralgia, anorexia, constipation, prostration, and anxiety, and a peculiar kind of intoxication ending after hours of vigil in a sopor from exhaustion.

What worse line of symptoms could follow the use of a beverage so commonly employed it is hard to imagine, and that many people use it to excess is unquestionable. Many have confessed to an inability to "get through the day" without copious imbibitions of what is, in many cases, a strong decoction. Some drink every twenty-four hours as much as fifteen pints, and some there are who are unable to judge of how much they consume. Whether a confession would be considered a matter of shame, it is hard to say; the general lack of moral tone and the total perverseness are so great. They are nothing more or less than genuine inebriates, and look upon tea as the same agent of support as an alcoholic does upon alcohol. It is high time that physicians should recognize these cases of dipsomania and study a method for their amelioration.

The following cases are reported, necessarily very briefly, as typical tea-inebriates. Such symptoms as are due to other complaints have been abscinded, and great care has been taken to avoid confusion between effects caused by too free tea-drinking and those of other agents.

CASE 33.—Female, was exceedingly nervous and easily startled at every noise; suffered much from insomnia, and when able to get any sleep it was greatly disturbed by terrible "nightmare." During the day her mind was very prone to wander, and she had difficulty in concentrating her attention on her work. Palpitation of the heart was constant. She used the tea for its stimulating action alone, and drank eight pints in twenty-four hours.

CASE 101.—Male, was much excited and sleepless, and after drinking tea was troubled with severe abdominal pains and nausea. The bowels were constipated. He drank, besides three pints of tea, fifteen pints of coffee every day.

This case illustrates the antagonizing effects of coffee when it and tea are drunk together. This is a very common occurrence, and patients seem to be able to drink a great deal of both, with few bad symptoms, except the cerebral stimulating effects and the insomnia.

CASE 148.—Female, twelve years of age. Her bowels were constipated. She was subject to bad attacks of dyspepsia and nervous headache. She had no appetite for general food, and was content with tea and toast. She drank about four pints of strong tea a day.

This is the youngest inebriate that has come under my notice, and in her method of living represents a large number of young women working in our large stores and places of business. The food-value of a meal of tea and toast may be designated as *nil*, and a sure consequence of such living is sickness and days of enforced idleness. To ameliorate such a state of affairs would be of economic value to the working class. In the domain of tea-drinking, at least, this class does not appreciate one's efforts in their behalf.

CASE 228.—Female, suffered greatly from conscious palpitation of the heart, especially at night, and from dyspnea. The pupils were widely dilated; indigestion was troublesome, and also insomnia. She used four pints of tea a day.

CASE 838.—Male, had pains all over the body, insomnia, conscious palpitation of the heart, dizziness, muscular tremor, headache, constipation, and sinking sensation in the epigastrium. He often contemplated suicide. He drank five pints of strong tea a day.

CASE 839.—Female, was very despondent and weak, had no appetite, had occipital cephalalgia, sinking sensation in pit of stomach, and palpitation of the heart. She had a very strong desire to "do away with herself." She depended largely on toast, and drank daily three pints of the strongest decoction of tea she could make.

CASE 966.—Female, aged twenty-five years, has suffered for several months from intestinal catarrh. She is dizzy and complains much of general headache, insomnia, nausea, and muscular twitchings. The usual meal is tea and pie. When she does not have an opportunity of making tea she will eat the dry leaves. She has attempted suicide. She drank ten pints of strong tea a day.

These three cases, Nos. 838, 839, and 966, contain an element of interest. They are the only ones met with so far in our study of tea-drinking which have had suicidal tendencies. They also well illustrate the dietetic perversity already referred to.

CASE 935.—Female, had constant headache, muscular tremor, dyspepsia, and palpitation of the heart. Her sleep was restless and much troubled by dreams. She screamed at night and was very despondent. The menses were irregular and painful. She was anemic, with a most pronounced hemic murmur present. Twitching of the mouth and conscious pulsation of the epigastrium were perceptible. She drank four pints of tea a day.

This case was one of the most obstinate to treat, and for awhile seemed to defy the heretofore efficacious medication. Persistence gave its own reward, and she is now in excellent health.

CASE 1017.—Female, had severe pain in the epigastrium, nausea, constipation, vertigo, pain in the back and side, sinking spells, muscular tremor, very weak eyes, and loss of appetite. She had a constant dread of going to sleep for fear she would never wake up. Her usual amount of tea was nine pints per day.

CASE 1083.—Female, thirty-eight years old, had irregular menses, was very nervous and forgetful,

had distress in the stomach after imbibition of tea, dizziness, despondency, and muscular tremor. She drank six pints, and often more, a day.

Case 1134.—Female, sixteen years old, gave a history of severe intercostal neuralgia, nausea, indigestion, headache, cramps in the bowels, and diarrhea. She was very nervous, and muscular tremor was marked. She had an hallucination that she was soon to be killed or meet with some bad accident. She has never menstruated. She drinks six pints a day.

This case and Case No. 1017 are illustrative of quite a common hallucination among these people. They are either fearful of impending death or some accident which will leave them crippled or deformed, and often beg piteously for relief.

Case 1177.—Male, was unable to regulate his bowels for several months, and suffered much from headache, vertigo, mental confusion, palpitation of the heart, insomnia, nausea, muscular trembling, dyspnea, dyspepsia, despondency, and a feeling of vacuity in pit of stomach. He had various delusions. He used about four pints a day.

Case 1274.—Male, was very nervous, had vertigo, mental confusion, horrible dreams, despondency, anxiety, palpitation of the heart, dyspnea, sinking sensation in the pit of stomach, and constant pain at top of head. He also had hallucinations, but of no constant character; in speaking he became very much excited, and stammered. This soon became so bad that he was unable to talk and had a strong desire to do violence to the one with whom he was speaking. He drank four pints of tea a day.

Case 1292.—Female, forty-five years old, had some rheumatism in the ankle and slight pain in the side, and was constipated. She drank ten pints of the strongest tea a day.

This case is a noted one on account of the large amount of tea drunk and for the length of time that she has maintained the amount taken. The method of making the infusion which she used was the same as that employed by the others.

These are a few cases selected at random to illustrate the symptoms one is most likely to meet with and their severity in tea-dipsomania.

The method employed in making the infusion of tea by nearly all of the cases which have come under my observation is as follows: An unmeasured quantity of the leaves is thrown into the teapot and an unmeasured quantity of boiling water added. In any time from ten to thirty minutes this infusion is used. In the preparation of the second infusion the new leaves are thrown in with the old, which have been left to soak, and the procedure given is repeated. This continued throughout the twenty-four hours assures, after the first infusion, a decoction heavily loaded with tannin (from 7 to 17 per cent.) and thein, and in fact with all the constituents of the leaf soluble in either hot or cold water. A method more pernicious and sure to give its own reward could hardly be devised That tea is an agent capable of producing the most untoward effects upon the system, our cases fully substantiate.

In reports just received from the lunatic asylums of Ireland the excessive drinking of tea is given a prominent place as an etiologic factor in causing insanity. This fact and the adscititious data of the increase in the amount of tea imported yearly makes a more thorough study of tea-inebriety desirable. There are many economic questions involved which it would be well for scientific sociologists to recognize and place at their proper status. To the physician there is revealed a field for research in mental diseases which promises good results. Nor must the power of tea as a causative factor in disease be lost sight of. The safest advice would be to interdict its use as unquestionably as one would the excessive indulgence in alcohol.

162 St. John's Place.

ARE LIGATURE-FISTULÆ AFTER CELIOTOMIES AVOIDABLE?

By FRANCIS L. HAYNES, M.D.
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Text: "Dr. Jones reported the following case: A young woman came into Christ's Hospital with an abscess three inches above the pubes. Why it was there was a puzzle. She had been operated on eighteen months prior for an ovarian tumor by Dr. Reed. The probe passed down behind the pubes for a considerable distance. With the curet this portion of the ligature (shown), which had been put on the stump, was fished up.

"Dr. Reed: The silk is manifestly impure. I have had this same thing to happen to me several times. Generally there is some infection, followed by an abscess or sinus. Sometimes, these ligatures, when once contaminated, will feed a sinus indefinitely."—*Cincinnati Obstetrical Soc.; Journ. Am. Med. Association, June 23, 1894.*

Comment: The foregoing text will recall to almost every surgeon one or more similar cases, too many of which may fairly be considered incurable.

Are such failures in technique avoidable? I know of but one certain means to avoid them: to use catgut instead of silk or other unabsorbable material for ligatures which are to remain in the tissues. For intestinal sutures we should still retain silk.

The use of catgut in the abdominal cavity is no longer experimental. Many hundreds of cases carried to a successful termination attest its safety. In my last hundred celiotomies, including nephrectomy, pan-hysterectomy, myomectomy during pregnancy, and extra-uterine pregnancy, I have used catgut exclusively, except for intestinal suture, in which fine silk is used, for hysterorrhaphy and for suturing the abdominal incision, in both of which wormgut is used. All have fully recovered except a case of colotomy for enormous sloughing carcinoma of the rectum and one of ectopic gestation

in which a fetid placenta was removed from the abdominal cavity.

Catgut is a little more difficult to handle than silk, but with a few hours' practice on dogs all difficulties may be readily overcome.

Preparation of Catgut: It is best to buy the raw material from dealers in silk-mill supplies, as gut must be strong and fresh to be used by manufacturers. The gut is bought in long skeins. The surgeon disinfects his hands, and with strong boiled scissors divides the skein into pieces about twenty-five inches long. The individual pieces are then made into coils and loosely secured by loops, after which they are dropped into a boiled preserving-jar, soaked in Squibb's ether for forty-eight hours, then in ethereal sublimate solution 1:200 for forty-eight hours, and finally in absolute alcohol. Just before the operation the surgeon, or his first assistant, with boiled forceps picks from the jar a sufficient number of loops, with which he threads a number of boiled needles, which are arranged in a boiled platter, from which they are picked by the surgeon (not by a nurse) as he needs them. The rule is never to return a piece of catgut to the jar after it has been once removed. It is better to use small storage jars, rather than large; in fact, I take to the operating-room about enough gut for two operations.

Silk and silkworm-gut are boiled for two hours and stored in alcohol. Just before the operation, the needles are threaded and then are basted into a towel and placed in a copper boiler and boiled for half an hour, after which the water is poured off. As needles are needed during the operation, they are picked from the towel by the operator himself, the nurse holding near at hand the boiler containing the towel in which the threaded needles are basted. As the threaded needles are not touched after boiling by anything but the disinfected hands of the operator, it follows that the chances for infection are reduced to a minimum.

Summary: 1. Ligatures and sutures will occasionally produce fistulæ if non-absorbable or slowly absorbable thread is used.

2. Silk is readily sterilized, but is likely to become infected by the hands during the operation, or by the tubal mucosa or other sources or through the drainage-tube after operation.

3. Catgut carefully prepared is in most cases a very satisfactory ligature-material. Should it become infected, it would disappear too soon to produce permanent fistulæ.

4. Operators should pay more attention to the preparation of ligature-thread. After ligatures are sterilized they should not be handled by any one but the operator.

CLINICAL MEMORANDA.

A CASE OF EXSTROPHY OF THE BLADDER.[1]

By H. C. MASLAND, A.M., M.D.,
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Because of its comparative rarity, the following case of exstrophy of the bladder, I think, justifies a report. The following is the history:

Maud M., born August 16, 1893, was the third child of healthy, well-developed parents. The other two children were healthy and well formed. The mother stated that nothing unusual had happened during the period of gestation that might account for the deformity. Labor was easy and natural. When I was called in, about six weeks after birth, the child presented a healthy appearance, with an excessive development of adipose tissue, which is well shown in the appended illustrations.

In the hypogastric region there was found absence of the abdominal walls extending as high as the umbilicus. The anterior half of the bladder was also absent, and the posterior wall presented a red, papillated surface, protruding to a greater or lesser degree, according to the degree of intra-abdominal tension. The line of union of the bladder with the abdominal wall was well defined by a smooth, glossy strip of mucous membrane. At the lower aspect the orifices of the ureters were noted at the summit of little papillæ. The vulvar parts were medianly divided as far down as the anterior wall of the vagina. A very slight groove was present on the superior surface of the vaginal wall, which represented the normal urethra. The pubic symphysis was also absent. The hymen was normal. There was no hernia found on either side. This condition, so frequent in males suffering from this deformity, we would not expect to find as frequent in females, due, of course, to the different anatomic construction.

Fig. 1.

The parts were kept as clean as possible, but some excoriation of the tissues surrounding the bladder unavoidably ensued. This is shown in Fig. 1, which represents the condition prior to the operation.

I advised postponement of operative procedure until the parts had more nearly approached the adult position, as the bladder of the infant extends well into the ab-

[1] Read before the Northampton County Medical Society.

dominal cavity, receding to the pelvic cavity as the child grows older.

The child is less able to bear the strain of the summer months and the teething period with this continual irritation, but statistics show that a good percentage pass these trying periods safely, and considering the fact, too, that operation has never perfectly restored the parts—incontinence of urine persisting, I believed on the whole, that it was better to wait until the child was at least two years old before attempting operative relief. The mother was anxious, however, to have the operation performed, and I acceded to her request.

After all preliminary attention had been given to the bowels and the parts to be operated upon, on March 6, 1894, assisted by Drs. A. R. Wilson and F. H. Erwin, the operation was performed. I considered the method of procedure as advised by Prof. Wood, of London, to be the best adapted to cases of this nature, and it was carried out.

According to this plan, a middle flap was measured on the abdominal wall superior to the bladder. This was separated from the abdominal wall, hanging by its inferior border. A groove of good depth was then made around the border of the bladder to allow thorough coaptation of the flap. Next, the two lateral flaps were outlined and separated from their deeper structures, the pedicle of these also being the inferior border of the flap. All the flaps were cut a little larger than strict measurement, to allow for contraction.

A considerable amount of adipose tissue was included in the flaps, that we might secure a good circulation and better insure the vitality of the parts.

Having dissected the flaps in a satisfactory manner, I proceeded to fit the inverted superior flap into the groove prepared for it. To accomplish this the silk was threaded in two needles and passed in an outward direction, first through the inner edge of the groove, then through the flap, piercing first the dermal surface of the flap, then through the outer edge of the groove, where the two ends were tied. These so-called tongue and groove sutures were repeated till the first flap was completely attached. This was the tedious part of the operation, and occupied some little time.[1]

The two lateral flaps were then twisted at right angles on their pedicles and sutured end-to-end over the first flap. Sutures were also introduced uniting them to the subjacent flap.

The elasticity of the skin, due to the large amount of fat present, rendered it easier to draw together the edges of the wounds made, making it possible to almost completely cover the raw surfaces.

Silk sutures were used in both the buried and superficial stitches.

It was the original intention to catheterize the ureters. This necessitated the use of catheters of very small caliber, and after watching them awhile and believing there was a damming back of urine, they were discarded, and I used an ordinary rubber tube placed in the vesical cavity. Rubber dam was used to protect the dressings. Notwithstanding the great caution that was taken, we were unable to perfectly protect the lower parts of the flaps from being contaminated with urine. We did not, as a consequence, get complete primary union between the lateral flaps. The parts united, however, without any ill effect. Save the two tongue and groove sutures mentioned later, the other buried sutures were not seen till May 25, when two were passed in the urine.

Chloroform was used in this case, as I believe it preferable in children, when there are none of the special contra-indications to this anesthetic.

The temperature after the operation was 101.4°; the child reacted nicely, during the evening the temperature coming down to 99.6°. At no time subsequently did the temperature reach the initial height.

Opium was administered to quiet the child, as, of course, restlessness and crying would increase the abdominal pressure, and so tend to separate the flaps.

For the first ten days the child was kept on a broad splint projecting beyond the head and the feet, and well padded so as to produce a slight flexion of the thighs on the abdomen.

During the second week the child contracted a slight bronchitis, but responded kindly to treatment.

On July 6, four months after operation, I was called to see the patient and found her with a temperature of 101.8° and presenting considerable swelling over the right lateral flap. Fluctuation was detected, and we attributed the condition to an irritating suture. The knot of this suture was expelled on July 7th along with a considerable quantity of pus. The parts quickly healed, and have given no further trouble. Fig. 2 shows very well the parts as they appear at the present time.

FIG. 2.

The child was not weighed before and after the operation, but it did not apparently lose flesh. Owing to the pulling out of a tongue and groove suture on either side, attributed to some unavoidable restlessness, the parts separated somewhat, leaving an opening at the present time capable of admitting the end of the finger.

In conclusion, I might say I expect at some future

[1] In connection with this part of the operation I might draw attention to a condition that interested us. In order to prevent the sutures from pulling through the unresisting adipose tissue we found it necessary to leave a small strip of skin tissue on the outer edge of the groove. This was completely covered in by the lateral flaps in a later part of the operation. The question was as to the result that would follow burying this strip of skin by the lateral flap, leaving the skin in contact with the adipose tissue. As far as we can see no harm has resulted. None of the text-books to which I have had access makes any mention of this little point.

time to endeavor to find the ends of the sphincter vesicæ and unite them, at the same time endeavoring to form a normal urethra. Ashhurst states that this has not yet been accomplished so as to give control of the bladder. I am not sanguine as to the result, but no harm can be done, and the attempt is well worth making.

In regard to the statistics concerning this condition, Prof. Ashhurst informs me that, including this case, he has collected 115 cases, with 87 recoveries, 6 failures, and 22 deaths—a mortality of 19 per cent. As far as I can learn, this is the youngest case that has been operated upon for this interesting condition. The child was six months and eighteen days old at the time of operation.

CONTUSION OF THE ABDOMEN, WITH RUPTURE OF THE THORACIC DUCT.

By THOMAS H. MANLEY, M.D.,
VISITING SURGEON TO HARLEM HOSPITAL, NEW YORK.

Serious abdominal contusions always constitute an interesting class of cases, and the one here presented was, from several standpoints, of a unique and unusual character. I can find no parallel case in the annals of American surgery, nor in the older foreign works any one possessing all the features of this.

It has been a debatable point whether, in visceral, central disorganization from contusive violence, the viscera suffer by *contre coup*, or whether the injury results from force coming from before, the structure being crushed between it and the resisting spinal column behind. In this instance the quality of force was dual; almost simultaneously both contusive and compressive. The case was a typical one, too, as illustrating the obscure symptomatology which, as a rule, attends abdominal contusions in their early stages. Clinical phenomena in their usual order succeeded in this case which are witnessed in all grave abdominal injuries. But, notwithstanding the extent of injury, recovery has been complete, and no evidence exists that any structural changes remain that in any way diminish bodily strength.

In all serious abdominal injuries of a contusive or compressive character, one of three things must necessarily happen: (*a*) hemorrhage; (*b*) laceration of a fixed, solid organ; (*c*) rupture of some part of the alimentary canal or of some of the tubular structures within the abdomen. But as the patient is invariably in a condition of shock of a severe degree, it may be quite impossible immediately after injury to make a correct diagnosis for the purpose of guiding us in a rational therapy or in forecasting prognosis. This was the condition in the following case; it was only after several days that I was able to determine what organs were injured and what escaped.

The patient, a man, thirty-five years old, of medium height and spare build, was admitted to Harlem Hospital, July 3, 1893. On the morning of that day, about one hour after he had eaten a hearty breakfast, while crossing a street, he was struck with great force over the epigastrium by the pole of a brewery-wagon and knocked down on his back. Before the driver could stop his horses the front wheel passed over the center of the abdomen. An ambulance was called, and the injured man was immediately admitted to the hospital. At this time he was in a state of great shock. Hypodermatic injections of brandy and strychnin were administered and artificial heat applied. The man complained of intense pain in the abdomen on the slightest motion. There were no marks of injury on the integument, except on the right side near the crest of the ilium, where a slight erosion of the integument was discovered. The pulse was 70, the temperature 98°, and the respirations 20.

As reaction set in, the abdomen commenced to distend and everywhere was exquisitely sensitive. On the day after admission the patient complained of pain in the hypogastrium and required catheterization. Except for a slight tinge of blood in the urine its analysis was negative. There was no vomiting. Opium was freely given, and hot stupes applied locally. On the third day (July 5th) peritonitis with entero-paresis was unmistakable. The eyes were sunken, the nose pinched, and the lips and ears cool and blanched. The man was in great mental distress and constant suffering, which it required large doses of opium to assuage. He was nourished altogether by enemata, and was allowed bits of ice to suck to relieve thirst, which now was excessive. The abdomen was hard, sensitive, and flattened, the knees extremely flexed to relieve muscular tension. The temperature on this date was 100.4°, the pulse 86, and the respirations 32. On July 8th and 9th the patient was about the same, except that he was becoming somewhat weaker. On July 10th the symptoms commenced to ameliorate; the abdomen was less tender, and he began to demand food. The pulse was 80, the temperature 100°, and the respirations 21.

At this time, on the right side, over the right iliac fossa, low down over the course of Poupart's ligament, there was a distinct bulging forward of the abdominal wall; this enlarged and diminished in volume, according to the position which the body took, being much the largest when the patient lay on the right side.

It was well defined, and transmitted a distinct fluctuating sensation on pressure. The surface of the integument over it was not reddened, and not hotter than elsewhere. On percussion, it was evident that whatever its nature, it had pressed the intestinal coils away from it; for it everywhere emitted a dull sound. It was nowhere sensitive, and on firm pressure could be made to quickly disappear. From its general character it was supposed that it was a hematoma. To definitely determine the question, an exploratory needle was introduced and the syringe filled. It was found that the collection was a fluid of a milky color and consistence. An incision was now made into the tumor, when a little more than sixteen ounces of a lactiferous fluid was discharged and secured as it came through the incision. The tumor was lodged immediately behind the peritoneum, over the sheath of the muscles. A drainage-tube was passed into the opening, its free end being engaged in a perforated cork in a pint-bottle. In the next twenty-four hours eight ounces of the same fluid were collected through the tube, but a large quantity had made its way out beside the tube and saturated everything in near contact. In the next four days the daily quantity collected averaged from five to six ounces. In the meantime, there was much that made its way out into the

clothing. It continued to drop, more or less, for ten days, when it finally ceased. All the time that this discharge took place the appetite was good, but the man became steadily weaker until the discharge ceased. He constantly complained of a feeling of emptiness in the stomach, and, particularly during the night, he clamored for food. On the fifteenth day the wound had healed and he was up.

A careful microscopic and chemic examination was made of the specimens of fluid evacuated at various times on the same day and on successive days, and was demonstrated to consist of pure chyle. The color was a bluish-white, very much like that of woman's milk. Its taste was slightly salty. Its odor was feeble, giving off an aroma very much like that from fresh, warm milk. Its specific gravity varied from 10.10 to 10.19; under the microscope it was found to contain an abundance of characteristic lymph-corpuscles, granules of fat, broken-down endothelium, and flakes of an ill-defined substance, probably coagulated protoplasm. On some days its specific gravity was less than on others, and it was always noted that it flowed most abundantly after eating. The man left the hospital August 31st, quite restored to health.

As this accident must have produced ulceration of some part of the chylous system within the abdomen, it is interesting to speculate on its *modus operandi* and where the brunt of force was sustained. I believe that it was the reservoir of the chyle which was ruptured while distended early after breakfast. The viscus is lodged behind the peritoneum, resting on the body of the second lumbar vertebra. It was violently crushed by the wagon-pole against the bony wall of the spine. The fluid, in response to gravitation, the same as in hemorrhage, gravitated into the flank, making its way around through the loose retro-peritoneal tissues, following the course of the psoas muscle over the iliac fascia till its further descent was arrested at the crural arch.

It certainly does seem extraordinary that a structure so well protected as the thoracic duct can sustain damage, while overlying, more exposed parts escape. This is difficult to explain; but, that it does occur is beyond question, as, for instance, when the aorta is torn open, or the deeply protected ureters, and various vessels in the abdominal viscera. A case of rupture of the common bile-duct with an enormous leakage into the peritoneal cavity was under my care three years ago which conclusively proved this. The young man had been run over by a heavily laden wagon. Shortly after (three days) he was tapped, when two gallons of bile were removed. On autopsy, a laceration four centimeters below the cystic conduit was discovered. None of the overlying organs was damaged.

The obscurity of diagnosis here was an interesting feature, and in this instance it is evident that an exploratory celiotomy would have accomplished no good, but on the contrary, would probably have very much diminished the patient's chances of recovery.

The Alvarenga Prize of the College of Physicians of Philadelphia, for 1894, has been awarded to Dr. G. E. De Schweinitz, for an essay entitled "The Toxic Amblyopias: their Pathology and Treatment."

SUPPURATIVE SACRO-ILIAC DISEASE DUE TO INDIRECT VIOLENCE, WITH NERVOUS SYMPTOMS.

BY A. H. P. LEUF, M.D.,
OF PHILADELPHIA.

THE following case is of interest in being a deviation from the rule. Ordinarily if the body has momentum from locomotion, and the lower extremities are suddenly arrested, there is likely to result a strain of the ligaments of the ankle or knee, or a dislocation of the ankle, or a fracture of the lower end of the leg. In the subjoined case, however, although the conditions named existed, the result was very different from what was to have been expected.

On February 28, 1891, I was requested by her legal adviser to see a lady with a view to determining her existing status, resulting from an injury due to negligence on the part of the city authorities, against whom she had entered suit for damages. I found a widowed lady of education, culture, and refinement, fifty years of age, American by birth, and rather stout. While out on the evening of June 22, 1890, mailing a letter, and as she stepped upon the sidewalk from the street-crossing, her left foot, instead of landing upon solid ground, passed down into a hole from twelve to fifteen inches deep, and large enough to readily admit the foot. She fell forward upon her hands. With a little aid she limped back to her home, only a short block away. At the time of the fall she experienced a "sudden, sharp, deep, burning pain" in the left hip and in the region of the back of the left sacro-iliac joint. Until August 20th of the same year she had almost constant pain, with occasional remissions lasting from half a day to two days at a time. During this period she used the common "liniments" and "pain-relievers" advertised by manufacturers and the simple remedies generally depended upon under similar circumstances. On August 20th, however, the pain became so severe that she took to bed. The pain was aggravated by motion. No other parts were affected, except the left knee and ankle to a slight extent. The woman remained in bed three weeks under homeopathic treatment, suffering pain all the time. She continued under the same medical care for fourteen weeks longer. During the first three weeks in bed she had "beating, throbbing pain, at times like labor-pains," at the site of the left sacro-iliac joint posteriorly. A hard ridge crossed the line of this articulation; it was three-and-one-half inches in length, with a depressed spot in the center, the size of a half-dime. During these three weeks this ridge, and especially the spot, were excruciatingly tender. The woman became rapidly emaciated, until she was "very thin." It was only in the middle of January, 1891, that she began to get around alone, with the aid of a cane.

When I called, she still had pain, at times severe and at others not. That in the knee and ankle continued from the beginning to the present, recurring every few days. Walking caused pain to appear, if absent during rest, and increased it if it already existed. To sit steadily, or to maintain any fixed position for ten or fifteen minutes, caused pain that constantly increased if her position was not changed. The pain was deep-seated. The woman complained of a very uncomfortable surface-

numbness at the lower end of the spine and back of the left hip. When she first sat up she had perfect numbness of both lower limbs and the buttocks. She could not use either leg for a long time while in bed, nor for a time after she began getting up. There was marked hyperesthesia of the left leg for eight weeks from August 20, 1890. Simply touching the skin would at times elicit screams. For seven weeks she was obliged to sleep upon her abdomen. After the three weeks in bed she could only leave the bed by being carefully lifted out, and then the most delicate handling caused excruciating pain. She was as helpless as a child.

About the third day in bed she developed a very free vaginal discharge, lasting more than three weeks. "The discharge was thick, greenish-yellow, and very offensive, the odor so penetrating as to make the room almost unbearable." She said "toothache is heaven to the pain I suffered that time."

During the December holidays she dismissed the homeopath and secured the services of a regular physician. The diagnosis of the former had been typhoid fever; that of the latter rheumatism, or at least a chronic congestion of the fibrous structures of the hip and vicinity, possibly caused by the injury. She improved rapidly during January and February, so that when I saw her she had regained her former weight, looked well, and could walk alone with care and effort. Some of her trouble in getting about was undoubtedly mental.

After a careful consideration of her history I concluded as follows: The sudden arrest of her foot while walking, and its fixation in the hole in the ground, against the edge of which her leg was fixed, as evidenced by a deep abrasion and subsequent scar, caused the momentum of her trunk, head and arms to continue these forward. While her foot was wedged in the bottom of the hole the leg at the junction of its middle and upper thirds pressed against the edge. The greatest strain was at the point of contact with the edge of the opening, but the contact being so high up on the leg prevented a fracture, for the double reason that at this point the tibia is much stronger than at its lower end, and because the leverage was less—*i. e.*, there was greater resistance and less power. At the moment of strain the knee was promptly fixed by its musculature, and so was the hip. The least protected parts were the two sacro-iliac joints, which have very little muscular protection, this being almost entirely fibrous. The keystone character of the sacrum in the posterior pelvic arch, with the forward tilting of its superincumbent weight and added momentum, the force of which this bone was so suddenly called upon to arrest, proved too much for its unsupported ligaments and its spongy tissue. The strain was sufficient to wrench or crush the cartilaginous face of the joint, and perhaps to tear the attachment of the fibers passing into the bone at the back of the articulation.

Had this condition been recognized at once, had counter-irritation, or local depletion by leeches been applied, and had absolute rest been steadily enforced until a day or two after subsidence of all pain, I believe that the woman would have made a complete and uneventful recovery. But the condition was not even suspected. The parts were compelled to do their work while attempting repair. The conditions were too severe; congestion increased, inflammation supervened, there was necrosis of cartilage, accompanied and followed by suppuration. The effort at repair while the joint was taxed with its normal work was marked by the two months after the injury, during which the patient kept about, but when destruction had fully set in she took to bed. The tension of the accumulating pus confined within the narrow limits of the sacro-iliac joint, with bony walls on each side, and ligamentous bands all around, was so great as to cause pain almost unbearable. Extension was in the direction of least resistance, which was anteriorly, though progress had been made behind, as evidenced by the tender, bulging ridge. Its anterior progress irritated the sacral plexus, causing hyperesthesia over its area of distribution, and subsequently, through pressure upon this plexus, paralysis and numbness of both lower limbs occurred, especially of the left, that of the right probably being largely reflex or sympathetic.

The possibility of extension of the pus through the auricular surface of the sacrum into the sacral canal, and thence upon the roots of the sacral plexus of each side, must not be overlooked. The slow and gradual mode of improvement is most readily accounted for on this supposition. Of course, evidence either way concerning this possibility was no longer available with any certainty when I saw her. No history had been kept by either attendant.

Eventually the abscess discharged into the vagina. The pus was characteristically greenish and horribly and penetratingly fetid. The discharge continued until the recuperative powers of the patient had completed the repair. As this progressed the symptoms waned, the patient felt better, her appetite returned, her nutrition improved, and she became convalescent. Tenderness of the parts naturally remained for awhile, as is the rule, but it gradually wore away.

If correct in my supposition, verification should be certain and easy through the vagina. An examination was, therefore, made with her attending physician. A small nodular scar, about one-quarter inch in diameter, was found in the upper end of the vagina, on the patient's left side. It was very markedly drawn directly toward the left sacro-iliac joint by a cylindrical band of scar-tissue.

I may also add that there were no local spinal symptoms indicating disease of the cord.

The case went to trial, and the woman recovered damages.

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AMPUTATION AT THE HIP-JOINT BY WYETH'S METHOD.

By ROBERT T. MORRIS, M.D.,
of Houston, Texas.

Some months ago, while an interne in the Charity Hospital, New Orleans, through the courtesy of Drs. Souchon and Matas, I performed a disarticulation at the hip-joint by the Wyeth method.

The history of this operation and the statistics to sustain it, and its advantages over allied operations have been so completely investigated and reported by Wyeth, Lanphear, Parham, and others, that it would be superfluous to attempt to make any additions. Suffice it to say that the mortality in civil practice has been reduced

from 64.1 per cent. to about 22 per cent. by this method, and that the two great sources of danger—shock and hemorrhage—have been materially diminished; in fact when the needles and tourniquet have been properly applied the hemorrhage is under complete control.

The case which I operated upon is as follows:

J. B., aged nineteen years, entered the Charity Hospital, March 16, 1894. His brothers and sisters are all healthy, and he is without tuberculous or syphilitic history. He had spent all of his life in the country on a farm. About December 3, 1893, while at work, he was hit on the external condyle of the femur with a "dolley," the blow producing considerable pain and incapacitating him for work for several days. About one month later a horse fell upon the same limb, injuring it to such an extent that he was compelled to use a crutch while walking. A tumor appeared soon after the last accident, and increased rapidly in size.

The patient is a tall negro, slightly narrow-chested, and of a cachectic appearance. His evening temperature registered between 99° and 100°. An examination disclosed a large spindle-shaped tumor, involving the thigh and leg of the right side, the greatest circumference of which, twenty-seven inches, was at the lower third of the shaft of the femur. The upper visual limit of the growth was about five inches below the anterior inferior spine of the ilium, the lower about four inches below the lower border of the patella. By aspiration a small quantity of dark, sanious fluid was removed from the joint-cavity. The inguinal glands were enlarged.

After explaining to the patient the gravity of the operation and the necessity of removing the focus of infection, he submitted to treatment.

The night previous to and the morning of the operation ten minims of the tincture of digitalis were administered. Chloroform was the anesthetic used. Mattress-needles were used to support the tourniquet. On April 3, 1894, the limb was disarticulated, observing closely the directions given in Wyeth's article in THE MEDICAL NEWS of December 9, 1893. After the limb had been elevated and an Esmarch bandage applied, the needles were inserted. While making the skin-incision it was noticed that the limb was not completely exsanguinated, and the tourniquet was retightened, after which no bleeding resulted.

The ideal flap was made; the circular muscular incision was on a level with the trochanter minor; the limb was then disarticulated and the vessels ligated.

The condition of the patient after the operation was satisfactory; shock was slight, and the man soon reacted. The day after the operation the temperature ran up to 101°, and continued above normal until his death, eleven days later. Six days after the operation nausea and vomiting supervened, which were the forerunners of peritonitis of a tuberculous nature.

The *autopsy* showed tuberculous enlargement of the internal iliac, lumbar, and mesenteric glands. There was also a tuberculous peritonitis.

It will be noticed that there were a few variations from Wyeth's original operation. It is recommended to remove the soft parts some inches below the muscular incision to facilitate the search for the vessels. This seems to be a needless complication, and unnecessarily prolongs the operation, and in consequence aggravates the shock. If the tourniquet is properly applied and supported there is no danger of disarticulating previously to the ligation. This, of course, pre-supposes the application of the needles sufficiently high to permit of disarticulation without their removal. Murdoch's suggestion of leaving the limb intact to use as a lever in disarticulating was utilized.

I think an observance of these modifications would remove the only serious objection to the operation—that the delay by this method and the double operation, amputation and disarticulation, greatly increase the shock.

A CASE OF SUBDURAL HEMORRHAGE.

BY J. SHELTON HORSLEY, M.D.,
OF STAUNTON, VA.

A. B., colored, about forty-three years of age, was a man who had not for some time enjoyed good health. About twenty years ago he contracted syphilis, which continued to trouble him to the time of his death. He had also been a very hard drinker, from which habit he was never completely free. He was not, however, subject to epileptic seizures or troubled in any way with cerebral symptoms so far as the knowledge of his physician extends.

On the afternoon of August 6, 1894, while sitting in a wagon, which was being driven slowly, he said the "hand he was holding on with slipped," and he fell, striking the left parietal eminence against the edge of the curbing. The wound inflicted was slight, being about one-and-a-half inches in length and not extending to the bone. He got up and seemed to have a slight convulsion of the left arm. Dr. Catlett was sent for, and after giving the wound proper attention he had the man sent home, a few blocks distant. The man was perfectly conscious at this time (4.30 P. M.), and as he complained of being nervous, Dr. Catlett gave him ammonium bromid. At 5 o'clock the Doctor was again sent for, and found the patient conscious, but having general convulsions. He then gave him a hypodermatic injection of morphin and atropin, which seemed to afford relief, and the spasm was then confined to his left arm.

At 6.30 P.M. the man was completely unconscious, his pulse full and rather slow. His respirations were stertorous, his body covered with sweat, and the temperature slightly elevated. At 10.30 of the same morning I saw the patient in consultation with Dr. Catlett. His condition was much worse; the respirations were shallow, difficult, and stertorous; the abdomen was very tympanitic; the pupils slightly dilated; the pulse about 125 per minute and weak. The spasm was confined to the left arm, the rest of the body being quiet, and consisted in eight or ten rapid partial flexions and extensions of the forearm upon the arm, the wrist and fingers not being involved. This happened every two or three minutes. The head was turned to the left side, and the eyes were also rotated in the same direction.

We thought of operating then. Weisemann's series of 257 cases of intra-cranial hemorrhage, 147 of which were treated expectantly, 131 dying; while of 110 operated on, only thirty died, would alone establish the justification of operating in cases of this kind, even in the most desperate conditions. However, the surroundings, which

were filthy, and many adverse circumstances deterred us so we gave a hypodermatic injection of ergotin, and left, feeling certain that the issue must shortly be fatal. The man died at 12.30 A. M., eight hours after receiving the injury.

The case being a peculiar one, we held an autopsy and procured the brain. The bone beneath the scalp-wound was sound and apparently uninjured, but had a slightly reddish tinge. The dura and the brain beneath presented nothing peculiar, but all the cortical blood-vessels were injected and engorged throughout the entire surface. We took out the brain and found an irregularly shaped clot on the outer surface of the right temporo-sphenoidal lobe, which proceeded apparently from the artery between the inferior and middle temporo-sphenoidal convolutions. This clot covered a portion of the outer surfaces of the three temporo-sphenoidal convolutions, the middle and inferior being chiefly affected. It was about two inches at its broadest diameter, an inch at its narrowest, and not more than one-sixth of an inch deep at its thickest point.

Feeling that there must be some other lesion to account for the arm-symptoms, we examined further and found a small clot just below the margin on the anterior portion of the inner surface of the upper end of the ascending frontal convolution. Further dissection revealed nothing of interest.

Among the points worthy of note are: 1. The main clot was found about diametrically opposite to the seat of the external injury, where the force-waves met. 2. There was another small clot nearer the original wound, which alone could account for the arm-symptoms. 3. Rapid death, hastened, I suppose, by a debilitated constitution, as the lesions found did not seem to be sufficient to cause death in a healthy individual, in such a short time. 4. The walls of all the bloodvessels seemed degenerated, the result, most probably, of syphilis and alcohol. I feel confident that if they had been normal, no such hemorrhage would have occurred.

MEDICAL PROGRESS.

Castration for Rupture of the Vas Deferens.—CARLESS (*Lancet*, No. 3708, p. 687) has reported the case of a strong, healthy-looking man, about forty-seven years old, who while lifting a piano was crushed, the whole weight of the instrument falling upon the patient, who at once felt a severe pain in the left side of the scrotum and in the left testicle, which became swollen and tender. No special notice was taken of this, as the pain passed away, but on attempting intercourse with his wife a few days later the most severe pain was again experienced in the testicle, which also became enlarged, and blood was found to have passed per urethram. On examination, the epididymis was observed to be large and tender, the swelling being most marked in the neighborhood of the globus minor, the testicle itself being of normal size and shape. Sexual intercourse was then omitted for some months, and at the end of that time, when attempted, was accompanied by great and sickening pain, with enlargement of the testicle. The patient was lost sight of for three years, remaining in the same condition. At the end of this time examination disclosed a chronic thickening of the epididymis, the testicle being still of normal size and consistence. There was also a definite varicocele, and a good deal of dragging pain was experienced. Sexual connection had been but little attempted during the interval, but was still excessively painful. Evidently the case was one of rupture of the vas deferens and castration was recommended. After the lapse of three months the left testicle was removed through an incision over the situation of the spermatic cord and not encroaching on the scrotum. The operation was a very simple one, as no adhesions existed, the cord being tied with silk in several pieces and divided close to the external abdominal ring. The wound healed by first intention in eight days, and the patient left the hospital in twelve days.

Vasomotor Rhinitis of Malarial Origin.—CHAPPELL (*New York Medical Journal*, No. 826, p. 403) has reported the case of a girl, eighteen years old, who was awakened early one morning by a chilly sensation, followed in half an hour by violent sneezing and a copious watery discharge from the nose. In the course of three hours the attack began to subside, and disappeared completely in three hours more. Later in the day considerable languor and drowsiness were experienced. On the following morning the attack was repeated at the same hour, and the symptoms recurred thus daily for a week. Various local remedies and internal medication were employed, with no relief until quinin was given. Three other cases of similar character are reported—one in a male of fifty, the second in a female of thirty-one, and the third in a female of forty-two. Ten others of a similar character have been observed, and it is believed that many such cases escape accurate diagnosis. In some of the patients the symptoms yielded to the administration of quinin, while in others they were favorably modified.

A Case of Traumatic Diphtheria with the Demonstration of Diphtheria-Bacilli.—ABEL (*Deut. med. Woch.*, 1894, No. 26, p. 548; *Centralbl. f. Bakteriol. u. Parasit.*, Bd. xvi, Nos. 10, 11, p. 455) has reported the case of a girl suffering with an attack of faucial diphtheria, in which, on the tenth day of the disease, a croupous deposit formed on a small wound on the ring-finger of the left hand, in which diphtheria-bacilli were found in pure culture. The wound healed in the course of twelve days under treatment by local applications of an iron solution. The diphtheria-bacilli, both from the wound as well as those obtained from the membrane in the pharynx, proved feebly virulent for guinea-pigs. The case demonstrates, in so far as experiment can, that diphtheria-bacilli alone, without the aid of other microörganisms, may infect wounds and give rise to the formation of false membrane.

Triple Births.—MIRABEAU (*Ueber Drillingsgeburten*, München, 1894; *St. Petersburger med. Woch.*, 1894, No. 36, p. 329) has found that triple births are most common (1 to 6500) in multiparous women between thirty and thirty-four years of age, the pregnancy being usually preceded by a long interval of sterility. Women who bear triplets usually come of families in which plural pregnancies are hereditary. Uterus duplex is believed to be a predisposing factor. The more fertile a community—that is, the larger the number of multiparous

women, the more common are triple births. In Russia the number of these is 1 : 4054; in Sweden, 1 : 4400: in England, 1 : 4600; in Germany, 1 : 7129; in France, 1 : 8256.

The Prevention of Recurrence of Volvulus.—On the hypothesis that volvulus of the sigmoid flexure of the colon is due to a shrinking of the mesocolon at its parietal attachment, which brings the arms of the S more nearly together, and which then, filled with scybala, swing to and fro, until finally torsion results, Roux (*Centralbl. f. Chirurgie*, No. 37) recommends fixing of the mesocolon to the abdominal wall, in order to hinder the excursions of this long-pedicled, offending loop, and thus prevent the recurrence of torsion. After releasing the volvulus he fixes the entire mesocolon laterally to the parietal peritoneum by means of a continuous catgut suture extending nearly to the linea alba.

THERAPEUTIC NOTES.

For Pulmonary Tuberculosis.—S. Solis-Cohen (*Philadelphia Polyclinic*, vol. iii, No. 28, p. 276 and No. 39, p. 386) recommends the following formula in cases of pulmonary tuberculosis presenting evidences of breaking down of tissue, or in which signs or symptoms of catarrhal processes in any portion of the air-passages are present, or in which there is continuous elevation of temperature or intermittent or remittent fever, exceeding 99.5 F.°:

℞.—Creosoti (beechwood) . . . ♏xxx–lxxx.
Tinct. cardamomi . . . f ℥iv.
Glycerini . . . . . f ℥ij.
Alcoholis . . . q. s. ad. f ℥ iv.—M.

S.—Two teaspoonfuls in water after meals.

Note.—To the glycerin add the creosote, then the tincture of cardamom and alcohol. The smaller dose of creosote is used at first, and the quantity gradually increased until five drops, four times a day, is reached as a maximum.

In certain cases of pulmonary tuberculosis, in which it is desired to act upon the heart in order to improve the pulmonary and general circulation and to stimulate the bronchial mucous membrane and respiratory tract in general, the following combination will prove useful:

℞.—Benzoyl guaiacol . . . . ℥j.
Powder of digitalis . . . gr. iij.
Eucalyptol . . . . . ♏xxiv.
Extract of gentian . . . q. s.—M.

Make twelve capsules.

S.—One capsule four times a day.

The following formula is of much benefit as a tonic nutrient in the early stages of pulmonary tuberculosis in anemic and scrofulous subjects, and in the prevention of the development of tuberculosis in predisposed persons worn out by nursing relatives in the last stage of this disease or otherwise run down in health.

℞.—Tincture of ferric chlorid . . f ℥ij.
Dilute phosphoric acid . . . f ℥iij.
Churchill's syrup of the hypophosphites . . . . . q. s. f ℥iij.—M.

S.—Two teaspoonfuls in a tablespoonful of water, after meals, thrice daily.

If softening have already taken place a few drops of creosote may be added to the dose. Inhalations of compressed air and systematic over-feeding must likewise be employed if it is desired to bring about a recovery.

Intravenous Injections of Mercuric Chlorid in the Treatment of Venous Septic Infection in the Puerperal State.—Kézmársky (*Centralbl. f. Gynäk.*, No. 38, p. 906) has reported the case of a quintipara who came under observation nine-and-a-half hours after the onset of labor. A deeply asphyxiated child was born that lived but a few minutes. On the third day the puerpera became feverish and had a chill, with pronounced elevation of temperature; this was followed by repeated chills on subsequent days. Examination revealed nothing other than transient sensitiveness and a sense of doughy resistance in the right vaginal vault. The condition was ascribed to a pyemic process in consequence of venous septic infection. On the eighteenth day gr. $\frac{1}{5}$ of mercuric chlorid was injected subcutaneously, and the injection was repeated on each of the following twenty-six days. This treatment was without influence upon the course of the illness. The patient finally died on the forty-fourth day in consequence of the rupture of a gangrenous metastatic abscess into the pleural cavity. Two other cases of similar kind coming under observation, the treatment was modified by introducing the mercurial directly into the venous circulation, the amount injected being gradually increased from gr. $\frac{1}{60}$ to gr. $\frac{1}{12}$, and the injection being made into a vein of the arm. One patient received ten injections of a total of gr. $\frac{1}{2}$, between the sixteenth and the twenty-fifth days; and the second, eight injections of nearly the same amount. Within two or three days of the institution of the treatment striking improvement had taken place. The temperature progressively declined and the general condition became more satisfactory. Both cases went on to ultimate recovery.

In the Treatment of Oxyuris, Nicholson (*Rev. des Maladies de l'Enfance*, June, 1894; *Journal de Med. de Paris*, No. 40, vol. vi, p. 482) has obtained excellent results from the employment of santonin and quassia. Santonin is administered every two days in medicinal doses for a period of a week, and at night a suppository consisting of extract of quassia, 1 to 3 grs. and cocoa-butter sufficient to make a suppository, is introduced into the bowel. It is well, besides, to apply about the anus, morning and night, an ointment containing a small amount of calomel, as well as a little extract of quassia. An enema of the following composition, repeated from time to time, is also serviceable:

℞.—Menthol . . . . . gr. j.
Olive-oil . . . . . f ℥j.

The finger-nails of the child ought to be cut short and the extremities of its fingers frequently immersed in an infusion of quassia in order to avoid auto-infection. Constipation is to be overcome by the use of calomel.

For Eczema.—

℞.—Acidi salicylici . . . . ℥j.
Zinci oxidi . . . . . ℥iij.
Adipis lanæ hydrosi . . . ℥j.—M.

Fiat unguentum.

S.—To be applied daily.

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SATURDAY, NOVEMBER 3, 1894.

A NOTEWORTHY BOOK.

THE translation into English of a Continental treatise on insanity is something of an event. After the translation of GRIESINGER, now almost thirty years ago, if we except the almost unknown rendition of SCHRŒDER VAN DER KOLK, there had been no occasion to note such an enterprise until the appearance of KIRCHOFF'S work in English a short time since. Hence as an enterprise it must be regarded as both laudable and not without risk. This is so because of the remarkable indifference with which, as it thus appears, English-speaking alienists have all along regarded the productions of French and German psychiatry. In this respect they have not kept pace with the other specialists. Whilst in all departments of the medical sciences contributions have been levied by translators upon the rich literature of the Continent, in mental science we have had for all these years only ESQUIROL from the French, in 1845, and GRIESINGER, from the German, in 1867.

The causes for this lack of literary enterprise are not to be found in any superior culture of American and English alienists which presupposes an intimate acquaintance with these foreign languages. Far from this, in America at least, the proportion among asylum-physicians who speak or read these tongues is small. The true cause must be a lack of interest in, a recluse indifference to, the masterpieces of European psychiatry. The tendency has been toward a narrow culture, if culture it can be called, which has consisted in turning over and over again the ideas which mainly were borrowed unconsciously from ESQUIROL two generations ago. As a consequence, until the recent rise of a pathologic school, represented by LEWIS, English psychiatry has been insular, and American psychiatry has been and still is provincial. Neither is the specialty in America relieved from this reproach by the fact that some authors freshly returned from Germany have occasionally fulminated Teutonized ideas under a thin guise of originality. It has been the voice of JACOB, but the hand of ESAU.

We have now to note and to commend the appearance of a translation of a modern French treatise on insanity.[1] It comes in good time to remind American readers of the famous country of PINEL and to let them not forget the debt which modern mental science owes to the long list of illustrious French writers who have molded and embellished it. There has been, in truth, some danger of such forgetfulness. The current in these later days has set toward Germany, and while we would not disparage the benefits derived from the Teutonic *cult*, we recall that PINEL had already established the moral and ESQUIROL the intellectual treatment of insanity, while Germany had as yet little more than the mystic tenets of the psychologic school of STAHL, of IDELER, and of HEINROTH. These latter were still teaching that insanity was only the perversion of the moral tendencies of the soul, produced by sin; that it had its source in the absence of morality, and that its best prevention and cure were to be found in the dogmas of religion, while already BAYLE, GEORGET, FOVILLE, and CALMEIL, at Charenton, were observing the symptoms and lesions of general paralysis, and, at the Salpêtrière, TRELAT was describing reasoning mania, VOISIN was studying idiocy, FALRET was correcting the errors of the partisans of monomania, and MOREL was preparing for his

[1] A Practical Manual of Mental Medicine, by Dr. E. Régis, formerly chief of Clinique of Mental Diseases, Faculty of Medicine, Paris, etc. With a preface by M. Benjamin Ball, Clinical Professor of Mental Diseases, Faculty of Medicine, Paris. 2d edition. Authorized translation by H. M. Bannister, A.M., M.D., etc. With introduction by the author. Utica, N. Y., 1894.

memoirs on degenerations, hereditary insanity and the etiologic classification.

DR. BANNISTER'S translation of RÉGIS' treatise ought to have a cordial welcome in America. The book reflects the best of the modern French school, and will infuse a distinctly new element into the studies and practice of the day. While not without some literary faults, the translation presents us with a noteworthy book both because of the conditions already stated and also because of many inherent qualities in the work itself.

The quality of a treatise on insanity is perhaps nowhere better shown than in the chapter on classification. This is likely to present the whole subject in epitome, because a wise author does not begin to classify until he has mastered the elements of his science. Hence he shows his defects on the one hand and his mastery on the other when he begins to marshal his morbid entities for classification. He exhibits then his mental grasp, and, what is more to the point, his knowledge. Judged by this standard, M. RÉGIS' book is one of marked originality and precision of thought. This chapter alone will be a contribution of inestimable value to the American alienist both for its clear philosophic method and for the fulness of its subject matter. It is obviously impossible to analyze this classification in this short space, but we may characterize it in brief as remarkably free from the *à priori* considerations which mar the scheme of KRAFFT-EBING —the best of the German school. This is shown especially by the skill with which it leaves space for new varieties, by its flexibility and adjustability and by its close adherence to clinical details. It takes progressive systematized insanity, for instance, out of the list of the degenerated types, for this disease, as MAGNAN has clearly shown, is not essentially an hereditary one in all cases; and it leaves an option for placing the periodic so-called psychoses, such as recurrent mania and circular insanity, among the hereditary or constitutional types, where they indubitably belong.

The mechanism of this notable book is not the least admirable thing about it. In his introduction to this translation, the author, with pardonable pride, points out the fact that this is "assuredly the first instance of a work treating of mental alienation, written by an alienist, translated by an alienist, and, under the direction of an alienist, printed and bound by the insane." It is published at the Utica Asylum, and deserves a cordial reception.

TO PREVENT THE SPREAD OF COMMUNICABLE DISEASES.

THE position taken by the New York Board of Health in its endeavors to prevent the spread of communicable diseases cannot be too highly commended, and is deserving of the warmest encouragement and intelligent imitation. Some of the measures proposed may have seemed unduly radical to conservative minds, but the salutary results brought about furnish the justification for the steps already taken. The stand of the Board in favor of the registration of tuberculosis, its watchful activity at the time of a threatened epidemic of cholera, its invaluable aid to the physician in the diagnosis of diphtheria, and its still more recent part in providing for the treatment of diphtheria by means of protective serum, are all matters of common knowledge. The Board, however, is not yet satisfied that it has exhausted its resources in the matter of checking the spread of communicable diseases. In a recent letter to the Sanitary Superintendent, DR. HERMAN M. BIGGS, Pathologist and Director of the Bacteriological Laboratory of the New York Board of Health directed attention to the inadequacy of the current methods of preventing the epidemic occurrence of contagious disease in tenement-houses and apartment-houses, and particularly for the enforcement of isolation of persons suffering with such disease. The methods which have been long employed in the Health Department, *i. e.*, frequent visitation and instruction by Department Inspectors, have been found to be only partially effective. It has been the custom for years in cases of contagious disease for the inspectors of the department to visit the families of the sick persons, inform them as to measures of disinfection and methods of isolation, and at the same time to notify other families in the house of the existence of a case of contagious disease in a given apartment. The notification of all of the inmates of a large tenement-house is a very difficult matter, and even when notified, experience has shown that they soon forget or ignore the existence of illness in the house.

In addition, such notification fails entirely to protect non-residents who may visit the house or apartment. Ladies in search of servants have been repeatedly found in houses or in apartments containing cases of contagious disease, and servants who have been living with families in which there are cases of contagious disease, on obtaining situations frequently go to their employers' houses, carrying

infection with them; or, when relieved from duty for an afternoon or evening, visit families in which there are cases of contagious disease, and not infrequently carry infection back to the houses in which they are employed. Very commonly washing or various kinds of sewing are secretly done by other members of the family in apartments containing such cases, and the garments thus infected on the premises are later returned to the owners. In small shops business is sometimes carried on during the prevalence of a contagious disease in the family, and in one instance recently a number of cases of diphtheria were directly traced to an infected candy-store. The mere notification of the inmates of a house is ineffectual further, because it has been found that, as a rule, families in tenement-houses do not come so much in contact with others in the same house as with families living in other houses, and the latter are entirely unprotected by the methods at present followed.

After careful consideration Dr. Biggs has reached the conclusion that the desired object would be best attained by the placarding of apartments in tenement-houses containing cases of contagious disease, and he has recommended that hereafter the Chief Inspector of Contagious Diseases be authorized, in his discretion, to placard apartments in tenement-houses containing cases of contagious disease; and his recommendation has received the ratification and endorsement of the Health-board.

In the case of diphtheria it is further pointed out that patients are often apparently well long before they are free from the infectious agency, and there is great danger that these patients, especially if children may mingle with other children, and thus transmit the disease. This mode of disseminating disease is of no less importance as regards scarlet fever and measles; in the latter diseases desquamation frequently continues many days after the patient has apparently quite recovered.

It is believed that the placing of placards announcing the existence of contagious disease in a house or apartment would have considerable moral influence both upon the inmates and upon strangers or visitors.

The procedure has for some months been employed in certain classes of tuberculosis, and has proved most satisfactory in the attainment of the object desired. The only objection apparently to be urged against this measure is that the inmates of the apartment may object to the publicity thus entailed. This is exactly the object which the measure is justly and properly designed to subserve, and is the strongest argument in favor of its adoption.

We congratulate the New York Board of Health on the courageous and advanced stand that it has taken and feel sure that its action will be followed by the most salutary results. The experiment, if the course of the Board may be so designated, will be an object-lesson for observation and study by all the large cities of the United States, and the principles involved may be applied to even the smallest community.

DR. WILLIAM GOODELL.

The announcement of the death of William Goodell will, perhaps, bring a sense of personal loss to a greater number of physicians than would the death of any other member of the profession in America. Dr. Goodell had hundreds of personal friends and admirers in all parts of the country, and there were thousands more who looked for his medical papers with interest and accepted his advice without question. His position in American gynecology was unique. He was one of the small group of pioneers who made the gynecology of this country what it is, and he alone among these men possessed the literary faculty to a high degree. Had he chosen he could have made his name famous by literary work pure and simple. He had but one equal in this respect among English-speaking physicians—the late Oliver Wendell Holmes. Consequently he was able to present the advances of the new science and art of gynecology in a manner that chained the attention of every reader. Moreover, his work bore such evident marks of keen perception, sound judgment, and a judicial fairness of mind, that what he wrote was not only read with interest and pleasure on account of its pure and attractive style, but it molded the thought and shaped the practice of an astonishing number of followers. A personal acquaintance with Dr. Goodell strengthened the liking and respect which his writings always inspired. His kindness and courtesy to younger men made him many a devoted friend. His instant and enthusiastic response to every worthy appeal for aid could be confidently expected. His presence united a simple kindliness of manner with an innate dignity that could scarcely fail to impress the most indifferent observer.

Highly gifted by nature with a powerful mind, a keen wit and the power of expression, Dr. Goodell

never presumed upon his natural advantages. His work of all kinds was of the most painstaking and methodical character. His case-book was a model of comprehensive and careful note-taking, and his literary work, in which he should have been conscious of masterly ability, was not regarded as completed till every sentence was read and re-read, written and re-written.

The main events of DR. GOODELL'S life are tolerably familiar to many medical men, and they have been described besides in the daily press. He was born in Malta, the son of a missionary. He received his collegiate and medical education in this country and began his medical career in Constantinople. He returned to this country after a few years, and settled in West Chester as a general physician. So unsatisfactory was his progress, however, that he determined to emigrate to the West. His books and furniture were actually packed and addressed to a small town in Kansas when, in 1865, he received the appointment to the Preston Retreat. Here he found congenial work in favorable surroundings, and during the twenty years of his residency he acquired a leading position in his branch of medicine, and this he maintained till failing health last summer forced him to retire. His strength failed steadily, and he died on the 27th of October, in the sixty-fifth year of his age. He was appointed Lecturer on Obstetrics and Diseases of Women in the University of Pennsylvania in 1870, and Clinical Professor of the Diseases of Women and Children in 1874, and he continued in this position until a little more than a year ago, when, on his resignation, he was made Honorary Professor.

There must be many who, like ourselves, mourn not only the disappearance of a distinguished figure from American medicine, whose place cannot be adequately filled, but the loss at the same time of a dear friend, a wise teacher and a safe leader.

EDITORIAL COMMENTS.

Religion and Medicine Among the American Negroes.—Some time ago we commented upon the urgent need of negro physicians, and in reply we receive from the Rev. J. W. Wright, of Independence, Kansas, a courteous letter, showing that 132 colored physicians have been graduated from the Meharry Medical College, at Nashville, Tenn., an institution supported by the Methodist Episcopal Church, and for the education of colored physicians exclusively.

In a pamphlet issued by the *Freedman's Aid and Southern Education Society*, church aid in supporting medical schools is urged on the following grounds:

"We have one medical school in U. S. Grant University, Tennessee, among the white people. This is self-supporting, and forms a nucleus of large influence on behalf of the Church, as well as enabling the Church to influence for Christ and humanity multitudes through those who are educated in this school. We have our Meharry Medical College, at Nashville, Tenn., from which 132 young negro physicians have been graduated. We are now establishing a second medical school in connection with New Orleans University. These are the only medical schools south of the Ohio River and west of the Carolinas in a population of nearly six millions of colored people, where a young colored man can be educated as a physician. The death-rate among the colored people is appalling, being nearly twice as large as among the whites. This is the result of poverty, ignorance, and lack of proper medical attendance and nursing. Christ cared for the bodies as well as the souls of men; so must the Church, especially among our poorer populations. It is the plan to establish nurse-training classes in all our leading schools, and to establish free dispensaries. No more Christly work can be done, and the marvellous results already achieved for the good of the people are beyond computation, or even expression in words."

We most gladly make mention of the foregoing facts, and as heartily commend the work. It is encouraging to find that the religious instinct in this unfortunate people is being used to further what is a true and genuine religious work. But we wish to urge that it be still tremendously more used. The medical aspect should be made primarily important instead of secondarily so. Instead of a hundred or more negro physicians there is the greatest need of many thousands. The use of the funds given for educational purposes by the benevolent should be more largely applied to medical education instead of to theological education. With this people religion is in no danger of suffering and needs no encouragement, whilst the medical need is a "bitterly crying" one. In this view of the case we know also we are in accord with the wisest minds of the colored race. The trustees of the Slater and Peabody funds should seriously consider this. Doctors are needed more than preachers a hundred times over. And we would also suggest to trustees, and to our colored brethren, that instead of establishing what must necessarily be poor-grade new medical colleges on racial lines, it would be far better to help students to secure their medical education at Northern or at other general medical institutions. Preparation for their work will thereby certainly be the better.

The Teaching of Medicine in Different Countries—There are in the twenty medical schools of Germany over 8000 medical students, 3507 of whom are foreigners. In England there are now but 532 students of medicine, extremely few of whom are non-English, and this number is smaller than for many previous years. We append the totals for recent years for the purpose of comparison:

1883 . .	605	1889 . .	620
1884 . .	587	1890 . .	614
1885 . .	647	1891 . .	662
1886 . .	623	1892 . .	596
1887 . .	683	1893 . .	598
1888 . .	688	1894 . .	552

It is no wonder that England sends up a "bitter cry," in view of this comparative preference of medical stu-

dents for German methods of teaching. Reasons have been sought to account for this remarkable condition, but all come back to the fundamental fact that the Germans are the more zealous, unselfish, and more scientific —in a word, they are the better teachers. It does not lie in the English character to be a good instructor. The Englishman commands rather than teaches. There is no question but that, as any other, he is as good and successful a practiser, as capable a healer of disease, but when he tries to tell young men what he knows, and to inspire them with the enthusiasm of his calling, he is a sad failure.

But we wish in no egotistic mood to call the attention of young Americans to the fact that there are no better medical teachers in the world than their own countrymen. With us teaching is natural, and no better facilities for post-graduate study exist anywhere than in the United States. They may not be quite the perfection of systemization, certainly not the remorseless and cruel use of "clinical material" to be found in German institutions, but we have in every one of our large cities, and in many small ones, hundreds of men who know their science, with as good intellects, and who practise their art with as perfect skill as are to be found in Teuton-land. Instead of running away thousands of miles, any student can find at home the most willing and capable teachers, an opulence of hospitals and laboratories, that await his demand. We have too long spurned our splendid opportunities. We advise none to go abroad for what can be found in abundance at home. We are producing as good text-books as are made in the world, and nowhere can be found a higher and purer enthusiasm for medical study and research than burns in the hearts of Americans. This matter of studying abroad is a fashion, a fad, we were about to say, that appeals to weak minds, but which is unscientific, unpatriotic, and to be discouraged on any ground of sense, common or uncommon.

Unsatisfactory Researches.—In a paper in the last year's volume of *Virchow's Archiv*, ADOLF GOTTSTEIN reviews the action of living organisms on hydrogen dioxid, and claims that this substance may be utilized as a means of estimating approximately the number of bacteria in water-samples. He states that if less than one-thousand living microbes exist in a cubic centimeter a scarcely appreciable evolution of oxygen occurs after fifteen minutes' action, while if many thousands are present a rapid action occurs. It is obvious that such a method would be of great value in sanitary chemistry. Gottstein gives no details of his experiments, except the method of making the test, and does not say whether the hydrogen dioxid was used in acid or alkaline solution, nor what strength was employed. These points are obviously of the greatest moment, as the tendency of the dioxid to decomposition is influenced by its strength and reaction. In a recent number of the *Centralbl. f. Bakt. und Parasitenk.*, H. Laser reviews Gottstein's work, and finds that the claims are not established. Laser's experiments indicate that the alleged simple relation between the number of living microbes and the evolution of oxygen does not exist. It is possible that differences in the quality of the hydrogen dioxid used may have caused some of the discrepancy, but it is probable that the first paper rested on insufficient work. The incident shows very clearly the danger that arises from the multitude of workers in the field of biologic chemistry, many of whom publish results without sufficient experimentation.

Water-Supplies in Pennsylvania. — The ninth annual (1893) report of the State Board of Health and Vital Statistics of Pennsylvania, lately issued, gives some analyses of waters from various parts of the State. The funds at the disposal of the Board do not permit of original research; the analyses are mostly made at the suggestion and expense of the local boards and in consequence of existing epidemics. Twenty-three analyses are given, which indicate five samples unfit for drinking-purposes and two suspicious. The number of analyses is too small to form a basis for a general inference as to the condition of the water-supplies over a territory so large and so varied as Pennsylvania; but in view of the frequency of local epidemics of typhoid fever, and of the liability of pollution of surface and subsoil waters, the necessity of more extended investigation and of devising of means of sewage-purification and stream-protection is evident. Legislation for the protection of water-courses is certainly wanted, and it is necessary also that some definite means of establishing sewage-disposal companies should be provided.

Ocular Ballottement.—The diagnosis of fluid vitreous with floating opacities may be aided by a little method that is not usually laid down in the text-books. The retinoscopic mirror is used in the same way as in indirect ophthalmoscopy. The patient has to be "trained" a little or carefully instructed in order to carry out the manipulation rightly, the essential point of which consists in halting a downward sweep of the eye suddenly and at such a point that the oculist can have a good view of the post-pupillary field. Direct the patient to look up to the ceiling and then to swiftly look at an object in front and on a line horizontal with the eyes, holding the gaze steadily there. If opacities floating in a fluid vitreous exist, this sudden "flip" of the vitreous chamber upward, followed by a sudden stoppage, flings the opacities upward, and with the ophthalmoscopic mirror they will be seen again to descend like snow-flakes falling outside of a window in the night. This method of diagnosis might appropriately be named *ocular ballottement.*

Effects of Poisonous Food.—An eruptive skin-disease now prevailing in London almost as an epidemic, mostly in workhouse-infirmaries, has been ascribed by some authorities to the milk-supply. Bacteriologic examinations of milk supplied to several infirmaries have been made, but no results indicative of a causal relation have been obtained. The disease has a death-rate of over 10 per cent. In the same number of the *British Medical Journal*, from which we condensed the foregoing account, is to be found some statistical information as to the effects of poisonous food. During the months of June, July, and August, nearly one hundred cases with five deaths have been reported. These were mostly from canned meats. The symptoms were vomiting, diarrhea, severe abdominal pains, cramps, and collapse. These symptoms might readily give rise to suspicions of criminal

poisoning. A case has recently been reported in which the greater part of the population of a village in Russian Poland was made sick by eating tainted herrings.

Hog-Cholera and Swine-Plague.—Veterinarians will be much interested in the results of a series of careful experiments conducted in the Pathological Laboratory of Johns Hopkins University on Hog-cholera and Swine-Plague, and presented in a recent brochure.[1]

These two swine-epizootics have been so commonly confused as to prevent the collation of reliable statistics concerning their relative frequency, virulence and treatment. Fortunately, this state of confusion has been finally disentangled by the clear presentation of the distinguishing characters of the microbes of the two diseases, as well as those of their peculiar lesions.

REVIEWS.

Microörganisms in Water: Their Significance, Identification, and Removal. By Percy Frankland, Ph.D., B.Sc., F.R.S., and Mrs. Percy Frankland. Octavo, pp. xi, 520, and index, with many illustrations. London and New York: Longmans, Green & Co., 1894.

Several features give unusual interest to this book. As a product of the joint authorship of husband and wife, both already well known in the field of original research, it is an earnest of the results of the higher education of women. The want of comprehensive information in a compact form in English has been seriously felt by sanitary chemists and engineers, particularly in America, where more attention seems to have been paid to the subject than in England. Percy Frankland has been engaged in investigation of microbic life in water and the effects of filtration, subsidence, etc., for many years. The present work republishes much of the matter that appeared in journals, but supplemented by later observations. Mrs. Frankland's most important work has been doubtless in the joint researches on the nitrifying microbes.

The work begins with the usual account of the methods of preparation and use of culture-media. The bacterial contents of various waters are treated of in about thirty pages; then follow one-hundred pages on the purification of water. This is especially Frankland's field, and much interesting matter is presented. It is, however, with surprise, and even irritation, that we note that no mention is made of the ingenious process of purification by metallic iron, reference to which was made in an editorial comment in The News some time ago. This process is operated on a large scale in several Continental cities, notably Antwerp, and it seems strange and unfair that it should not be noticed. Even if the authors of the book have doubts as to the method, these doubts should have been set forth, for other processes acknowledged to be of little value are given some space. Extended reference is made to the work of the Massachusetts State Board of Health. A long chapter on the influence of light on microörganisms in water is summarized by the statement that sunshine is to be recognized as a powerful bactericide, but the value of it is liable to be overrated. Anthrax-spores, for instance, resist the action of sunlight for many hours. The application of insolation has, however, but minor interest in the management of public water-supplies, as we know that filtration can be made to remove practically all the dangerous microbes from water. An appendix of over a hundred pages gives descriptions of each species of microbe which has been reported as occurring in water. No satisfactory system of classification for these organisms has yet been found. The present work does not add to the vividness of this department of biology by adopting an arrangement based on the similarity of the pigment produced, which is equivalent to describing in sequence all plants which produce red flowers.

In consulting a work of this character the sanitarian turns promptly to the description of the supposed specific bacillus of typhoid fever. Much space is given to the topic, and it is clearly shown that a large proportion of the published statements are unreliable, and that especially the *b. coli communis* has often been confounded with *b. typhosus*. Great is, however, our surprise to note an entire ignoring of Vaughan's important contributions to this field. The omission is a serious one, for if the authors had embodied the results that the American investigator published some years ago still greater doubt would have been thrown on the specific identity of the typhoid-fever germ. Enough is now known to show that no reliance should be placed on reports of finding of this microbe unless the methods of identification be given.

The work is well printed, and will find a wide acceptance.

Transactions of Societies:

Transactions of the American Gynecological Society. Vol. 19. For the year 1894.

Transactions of the Medical Society of the State of New York for the year 1894.

Transactions of the Medical Society of Virginia. Twenty-fourth session, Charlottesville, Va., October, 1893.

Transactions of the Texas State Medical Association. Twenty-sixth annual session, Austin, Texas, April, 1894.

Transactions of the Medical and Chirurgical Faculty of the State of Maryland. Ninety-sixth annual session, Baltimore, Md., April, 1894.

Transactions of the South Carolina Medical Association. Forty-fourth annual meeting, Rock Hill, S. C., April, 1894.

Transactions of the Association of American Physicians. Ninth session, Washington, D. C., 1894.

Transactions of the Michigan State Medical Society for the year 1894.

Transactions of the Medical Society of the State of California. Session of 1894.

Transactions of the Vermont State Medical Society for the year 1893.

Transactions of the Indiana State Medical Society. Forty-fourth annual session, 1893.

The annual influx of society *Transactions* brings with it such a vast amount of literature that mere mention of

[1] Remarks on Hog-Cholera and Swine-Plague, by William H. Welch, M.D., Professor of Pathology Johns Hopkins University, and A. W. Clement, V.S. Pamph. 37 pp.

a few of the more prominent features of the various volumes is all that a limited amount of space will permit. While it is true that much that appears in volumes of this description is but a presentation of old material in new garb, there are always to be found therein valuable contributions to the medical knowledge of the day. Thus, in the *Transactions of the American Gynecological Society* among other meritorious papers there is a complete *résumé* of the accepted management of that difficult obstetric complication, face-presentation, together with an exposition of the present status of symphysiotomy in obstetric surgery. The discussion by eminent practitioners of abdominal surgery, menstruation and its abnormalities, and diphtheria, as recorded in the *Transactions of the New York Medical Society* is truly brilliant, and from a practical standpoint leaves untouched little of these vital questions that is worthy of consideration. The same may be said of the interesting series of papers on tuberculosis, to be found in the *Transactions of the Michigan Society*, and on chronic nephritis and the place of electricity in general practice in the *Transactions of the Medical Society of Virginia*. Of more than passing interest are the papers by George Dock on "Osteomalacia," and by J. P. Crozer Griffith on "Tetany in America," recorded in the *Transactions of the Association of American Physicians*. The *Texas State Medical Association* offers a truly valuable collection of papers which merits a more substantial binding than that provided by the society. The rich and varied medical botany of the far West is ably presented in the two papers by W. P. Gibbons on "Poisonous Plants of the Pacific Coast," and "Indigenous Botany," both to be found in the *Transactions of the California State Medical Society*. An instructive contribution to the history of medicine in the United States is contained in Dr. Wishard's paper on "Medical Men and Medical Practice in the Early Days of Indianapolis," in the *Indiana Transactions*. The dominant feature of the *Transactions of the South Carolina Medical Association* is the address by Howard Kelly on recent results in hystero-myomectomy; of the *Vermont Transactions*, the "Location of the Lesion in Paralysis," by M. R. Crain; and of the *Transactions of the Maryland Medical and Chirurgical Faculty*, the President's address on the extinction of tuberculosis.

Gonorrhea: Being the Translation of Blenorrhea of the Sexual Organs and its Complications. By Dr. Ernest Finger, Docent at the University of Vienna. Third revised and enlarged edition, with seven full-page plates in colors, and thirty-six wood-engravings in the text. 8vo. pp. 324. New York: William Wood & Company, 1894.

So far as we are aware, this third edition of Prof. Finger's work is the first to appear in English dress. The translator's name is not given, but he has discharged his task very creditably.

After an introductory historical chapter, an exposition of the anatomy and physiology of the urethra is presented, the important fact being especially insisted upon that the canal is divided by the compressor muscle into two sharply-defined portions, anterior and posterior. We believe that by practical surgeons the distinction between the inflammations of these two regions has been recognized; but we are not aware that any systematic writer has so clearly set it forth or pointed out their anatomic boundary.

Acute urethritis is next discussed, first as affecting the anterior part of the canal, and then the posterior; the diagnosis, prognosis, effects, and treatment of each condition being duly dwelt upon. We need only say that the views presented are in full accord with the surgery and pathology of the day.

Under the head of chronic urethritis our author lays much stress upon the use of the endoscope, describing the appearances revealed by it, and the technique of its employment. We are inclined to think that this instrument will long remain, as at present, in the hands of a few specialists, and that the profession at large will be content to accept their statements of the pathologic conditions observed by them.

The complications of blenorrhea in the male are next discussed: balanitis, infiltration and abscess, inflammation of Cowper's glands, prostatitis, epididymitis, inflammation of the seminal vesicles, and cystitis.

Chapter V is devoted to the subject of blenorrhea in the female; Chapter VI, to its complications: vulvitis, inflammation of Bartholin's glands, and inflammation of the uterus and its appendages.

Finally, a chapter is given to such complications as are common to both sexes: gonorrheal rheumatism, endocarditis, exanthemata, ophthalmia, and adenitis.

We think it would have been better to have had running headlines indicating the material contained on each page. Nor do we approve of appending to the name of each author quoted the date merely of his contribution; references in foot-notes, or a bibliographic table would enable the reader, should he so desire, to follow up the study of the views or observations mentioned. Some exception may be taken also to "Bartholinitis" and "Cowperitis," the latter being even used in the plural, "Cowperitides" (!) Notwithstanding these minor criticisms, we regard this book as a valuable addition to surgical literature, and commend it to the favor of the profession.

CORRESPONDENCE.

INFILTRATION-ANESTHESIA.

To the Editor of The Medical News,

Sir: In an abstract under the head of "Infiltration-Anesthesia," p. 442 of The Medical News, of October 20, I was surprised to find Schleich credited as "the originator of the method."

This is surely an error, for I have used it for over twenty years in preference to *deep* hypodermatic injections. In 1875, when in charge of the Post Hospital at the Portsmouth (N. H.) Navy Yard, I employed it extensively (as did also my assistant, Dr. Heffinger, and others) as a local anesthetic, as a substitute for injections of morphin in sleeplessness, and for the relief of neuralgic and other pains; hot and cold water, salt water, diluted alcohol, carbolized water, glycerin and oils, were used with good results.

The needle was carefully introduced about *half its length* parallel to the surface of the skin, and a large hypodermatic syringe *full of hot water* was very slowly injected intracutaneously, raising a large, white anesthetic wheal, the

appearance of which greatly impressed the sailors and marines.

I fancy the method was introduced by Dieulafoy, and was known to the profession long before Schleich drew attention to it in the *Therapeutische Monatshefte*.

Yours, faithfully,

C. J. Cleborne, M.D.,
Medical Director, U. S. Navy.
U. S. Naval Hospital, Norfolk, Va.

NEWS ITEMS.

Foot-ball "Accidents."—We believe that it was Mr. Jorrocks who said that hunting possessed all the glories of war and only five-and-twenty per cent. of its danger. The foot-ball percentage must be considerably higher, for though the season is yet only a few weeks old, we have already before us a list of casualties which would do credit to a little war. Since we referred to the matter last, in connection with a sudden death from injuries received by a player, we have received reports of the death of a man at Windhill, near Leeds, who during a game fell "in the ordinary way," a number of other players fell over him, and he died on the following day. A Preston player named Hall fell and broke his arm; the general symptoms became serious, and this young man of eighteen died shortly of tetanus. In an engagement between the Blackburn Rovers and Burnley after five minutes' play one man broke his leg in a collision, and during the second half another man was carried off the field with an injured leg. On the same day, near Burton-on-Trent, a player "fell with his leg under him in such a way that it was fractured." At Llanelly, in a match between that place and Neath, two men were injured, but their injuries were slight when compared with the average. So the list grows steadily from week to week, and last Monday's papers told us how on Saturday the head master of Appeldurcombe College, Ventnor, sustained a compound fracture of the right leg during a foot-ball match, and how the captain of the Maidstone team, playing at Dover, "collided with a goal-post and split his collar-bone; he was removed to the hospital." The hunting casualty-list this year contains, we believe, the name of only one lady badly wounded, but recovering. On the whole, foot-ball as at present played appears to be about as dangerous an amusement as a South American revolution.—*British Medical Journal, October 29th.*

On October 3d, at Kingswinford, Staffordshire, an inquest was held on the body of Frank Griffiths, a member of the Kingswinford Albion Foot-ball Club, who died on the 1st instant from internal injuries consequent upon a kick in the abdomen. Whilst playing for his school on the same date against Hesketh Park, J. T. Smith, aged twenty-eight, an assistant master at Bickerton House, Birkdale, Southport, received a blow in the abdomen from the knee of an opponent. The accident was not deemed serious at the time, and medical aid was not sought until after the lapse of an hour and a half. He died on the morning of the 15th from peritonitis. The following accidents also occurred on Saturday, October 13th: In a match between Sutton and Keighley Trinity, W. H. Hardacre, one of the Sutton home forwards, sustained a fracture of the clavicle. During a match between Burnley and Darwen, played at the latter town, a player was seriously injured in a scrimmage, but the real nature of his injuries has not transpired. A youth aged eighteen fractured his right patella whilst playing in a match between All Hallows and the University Extension team at Clapton.—*The Lancet, October 20th.*

From two or three American newspapers that come to us we gather the following—a few of many similar delightful proofs of the physical, moral, and educational tendencies of the game:

Hillsdale, Mich., October 23.—The foot-ball game between Olivet and Hillsdale was won by Hillsdale, score 34 to 6. The boys had it in for each other, and the consequence was several were badly bunged up. Snyder, of the Hillsdale, was so badly battered he had to have a substitute. Olivet left one of its foot-ball players at the fraternity house last night with a broken rib. One of the team went back minus half a dozen teeth, bunted out by Hillsdale's colored player.

"This makes the seventh broken clavicle at Harvard this year."

Breckinridge, of Princeton, was injured at Hightstown, N. J., in Saturday's game, and was removed unconscious from the field.

Haverford seems to be undergoing her usual course of hard luck, and at present five of her best players are prevented from playing, either on account of injuries or other circumstances. Hay, Morris, and Scattergood have stopped playing, while Alsop and Captain Webster have sustained such injuries as to prevent them from playing for some time.

The Lehigh team is badly crippled, seven men being on the injured list, and the men improve but slowly. Twisted and sprained ankles, turned joints, overtraining, etc.

Holly, Brown, Morse, and Ward have not appeared since the Cornell game, two weeks ago. Reiter and Poe were hurt, and have also not been able to play since the Lehigh game.

On Saturday, Alsop, Haverford's best tackle, hurt the same knee which was wrenched last year, and which prevented him from playing in the Swarthmore game last fall. The loss of Alsop weakens Haverford's team very much.

Captain Lincoln, of the Dickinson College eleven, has broken his collar-bone.

In Brooklyn rough play prevailed throughout the contest, and in several instances blows were exchanged between the players. The feeling between the teams was very bitter, and it looked at one time as if the crowd were going to see an old-fashioned rough-and-tumble fight. The interference of others alone prevented such a scene. Hard names passed between the men when they left the field, and the police, apprehensive of another collision, rushed among the players and cautioned them that a repetition of the pugilistic exhibitions would result in considerable trouble for the offenders.

As a result of the rough character of the play two players were so badly used up that they were compelled to leave the field.

Just as Taussig neared the ropes, Emmons, the Harvard captain, gave him a vicious push. Taussig promptly rooted up the ground for quite a distance with his rubber nose. When play was resumed he watched his chance

and dug his head into the pit of Emmons' stomach so fiercely that it almost laid the big Harvard man out. In a scrimmage at this juncture big Mackie, of Harvard, provoked hostilities with Colnan, his opponent in the line, and was more than ready to quit when the Ithacan came back with the same kind of medicine.

The Secretaries of War and of the Navy have refused, upon the recommendation of Colonel Ernst and of General Schofield, to allow the Military and Naval Academy teams to play on Thanksgiving Day. General Schofield wrote:

"The game of foot-ball as recently played requires some essential modifications. This, I believe, is the concurrent public sentiment on the subject. The required modification will be difficult to enforce for the reason that the objectionable features are those which contribute most to success in a contested game. They are those features which are most dangerous to life and limb, and may be said to most resemble military operations. They are none the less objectionable on that account. While it is undoubtedly true that experience in actual war is the best possible military training, modern civilization does not permit the making of war simply for the purpose of training an army. For like reasons the practice in peace of those operations which most resemble war must be condemned, notwithstanding the fact they are manifestly beneficial as military training.

"The reports of the superintendent show that the casualties in the play of foot-ball at West Point are much greater than they ought to be, and the same may also be said in respect to riding, although expert horsemanship, being indispensable in a large part of the military service, must be acquired, although at much risk.

"There is little need of foot-ball at West Point simply as a means of physical training, and as such it is open to the objection that it is far from universal. Probably the young men who most need such training do not get it, but only those who, being already endowed with splendid physical development, are capable by additional training of successful competition with the best of any other selected class."

The New York State Association of Railway Surgeons will hold its fourth annual meeting in the New York Academy of Medicine, November 15, 1894. The following program has been arranged. President's address: "Important and Unsettled Questions in Railway Surgery," Dr. M. Cavana, of Oneida; "When Shall We Amputate? (*a*) Arguments Favoring Early Amputations," by Dr. W. L. Estes, of South Bethlehem, Pa.; (*b*) "Arguments Favoring Delayed Amputations," by Dr. T. H. Manley, of New York; (*c*) "Technique of Amputation," by Dr. John A. Wyeth, of New York; "Asepsis and Antisepsis in Surgical Work," by Dr. F. A. Stillings, of Concord, N. H.; "Special Features in Railway Surgery," by Dr. C. B. Herrick, of Troy; "The Immediate Care of Railway Injuries," by Dr. J. A. Van Duyn, of Syracuse; "Important Factors in Unusual Results Following Traumatisms," by Dr. R. S. Harnden, of Waverly.

Johns Hopkins Medical School.—The second year of the undergraduate department in medicine opened on October 1st. There were 31 entries, making in the two years 50 students in all. Of these, 13 are graduates of the Johns Hopkins University; 8 of Yale; 5 of Harvard; the others of smaller colleges throughout the country. Of the 10 women undergraduate students 3 are from Smith College; 3 from Vassar; 1 from Wellesley; 1 from Bryn Mawr.

States are represented as follows: Maryland, 15; New York, 7; New Jersey, 4; Connecticut, 4; Massachusetts, Ohio, Wisconsin, and California, each 3; Indiana, Kentucky, Virginia, Alabama, and Minnesota, each 1, and Canada 2.

A Statue of Dr. J. Marion Sims was unveiled in Brooklyn on October 21st amid impressive ceremonies. The statue is unique in being the first statue of a physician ever erected. The pedestal bears this inscription: "J. Marion Sims, M.D., LL.D.; born in South Carolina, 1813; died in New York city, 1883. Surgeon and Philanthropist, founder of the Woman's Hospital, State of New York. His brilliant achievements carried the fame of American surgery throughout the civilized world. In recognition of his services in the cause of science and mankind he received the highest honors in the gift of his countrymen and decorations from the Governments of France, Portugal, Spain, Belgium, and Italy."

Horace Wells Anniversary Celebration.—A committee of the American Dental Association, with Dr. J. D. Thomas, of Philadelphia, as chairman, has arranged for a national celebration of the fiftieth anniversary of the discovery of the anesthetic properties of nitrous oxid by Dr. Horace Wells, to be held in Association Hall, on December 11, 1894.

A paper upon the "History of Anesthesia" will be read by Prof. Thomas Fillebrown, of Boston, and one on the "Benefits of Anesthesia to Mankind" by Prof. James E. Garretson, of Philadelphia.

The meeting will be followed by a banquet at the Union League at 6.30 P.M.

A Medical Library Association has been recently organized in Grand Rapids, Michigan, with the purpose of forming a reference-library of medicine and allied sciences. The new organization has a membership of about fifty, including not only physicians, but dentists and pharmacists as well.

One of the features of the association will be the admission of non-residents to membership, who upon payment of a small annual fee may avail themselves of the advantages of the library.

Discussion on Appendicitis.—At the meeting of the College of Physicians to be held on November 7th, Dr. John B. Deaver will read a paper entitled "Further Observations on Appendicitis: with a Report of Sixty-one Cases of Chronic Appendicitis, with One Death." Dr. Charles McBurney, of New York, will open the discussion.

Dr. A. H. Buckmaster, one of the editors of the *American Gynecological and Obstetrical Journal*, has been elected professor of the practice of medicine and of obstetrics and gynecology in the University of Virginia.

Dr. Roux, a pupil of Pasteur, who has been engaged in the preparation of serum for the specific treatment of diphtheria, has been made a Commander of the Legion of Honor.

BOOKS AND PAMPHLETS RECEIVED,

Annual Report of the Managers of the Sanitarium Association of Philadelphia, 1893. Philadelphia: Allen, Lane & Scott's Printing-house, 1894.

The Tubercular Diathesis Controlled by Gold and Manganese in Combination. By J. Blake White, M.D. Reprinted from the American Medico-Surgical Bulletin, 1894.

Clinical History of a Case of Spindle-Celled Sarcoma of the Chorioid. With a Study of the Microscopic Condition of the Growth. By Charles A. Oliver, M.D. Reprinted from the Proceedings of the American Ophthalmological Society, 1893.

A Case of Cyst of the Cerebellum. By William F. Wegge, M.D. Reprinted from the Journal of the American Medical Association, 1894.

A Contribution to the Anatomy of the Human Retina, with a Special Consideration of the Terminal Loops of the Rods and Cones. By W. F. Norris, M.D., and James Wallace, M.D. Reprinted from the University Medical Magazine, 1894.

De l'Hydronéphrose Intermittente. Par le Dr. Lucas-Championniére. Extrait du Journal de Médecine et de Chirurgie Pratiques, 1892.

Modification du Taux de l'Urée dans l'Urine. Par le Dr. Just Lucas-Championnière. Extrait du Journal de Médecine et de Chirurgie Pratiques, 1893.

Ligation of the Base of the Broad Ligaments, Including the Uterine Arteries, per Vaginam, for Fibroids of the Uterus. By Augustin H. Goelet, M.D. Reprinted from the American Medico-Surgical Bulletin, 1894.

The Legal Responsibility of the Aged. By J. J. Caldwell, M.D. Reprinted from the Medical and Surgical Reporter, 1894.

Transactions of the Massachusetts Medico-Legal Society. Vol. II, No. 3, 1893, Boston: Damrell & Upham, 1893.

Transactions of the Massachusetts Medico-Legal Society. Vol. II, No. 4, 1894. Boston: Published by the Society, 1894.

The Middlesex Hospital, W. Reports of the Medical and Surgical Registrars and Pathologist for the Year 1892. London: H. K. Lewis, 1894.

The Uric-Acid Diathesis and its Treatment. By John F. Barbour, A.M., M.D. Reprinted from the American Therapist, 1894.

Charaka-Samhita. Part IX. Translated into English. Calcutta: Published by Avinash Chandra Kaviratna.

Clinical History of the Case of President James Abram Garfield. By Robert Reyburn, A.M., M.D. Reprinted from the Journal of the American Medical Association, 1894.

Report of the Leprosy Question in Louisiana. By Isadore Dyer, Ph.B., M.D. Reprinted from the Proceedings of the Orleans Parish Medical Society, 1894.

Leprosy. By Isadore Dyer, Ph.B., M.D. Reprinted from the Texas Medical Journal, 1894.

Proceedings of the Oregon State Medical Society, 1892–93. Portland, Ore.: Glass & Prudhomme, Printers, 1894.

Der Alkohol als Genuss und Arzneimittel. Vortrag von Dr. A. Jaquet. Benno Schwabe, Schweighauserische Verlagsbuchhandlung. Basel, 1894.

The Importance of Early Recognition and Treatment of Obstructive Diseases of the Upper Respiratory Tract. By Joseph S. Gibb, M.D. Reprinted from the Transactions of the Philadelphia County Medical Society, 1894.

Amputation of the Entire Upper Extremity (including the Scapula and Clavicle) and of the Arm at the Shoulder-joint. By W. W. Keen, M.D. Reprinted from the American Journal of the Medical Sciences, 1894.

Les Universites des Etats-Unis et du Canada et Spécialement Leurs Institutions Médicales. Par le Dr. O. Laurent. Bruxelles: H. Lamartin. Paris: G. Carré, 1894.

Teno-Suture and Tendon Elongation and Shortening by Open Incision; Advantages and Disadvantages of the Various Methods. By H. Augustus Wilson, M.D. Reprinted from the International Clinics, Vol. I, Fourth Series.

Text-book of Medical and Pharmaceutical Chemistry. By Elias H. Bartley, B.S., M.D. Third edition, revised and enlarged. Philadelphia: P. Blakiston, Son & Co., 1894.

Ophthalmia Neonatorum; Contraction of Eyelids; Glaucoma; Grattage for Granular Lids. By L. Webster Fox, M.D. Reprinted from the Medical Bullatin.

History of the Drop-Bottle. By L. Webster Fox, M.D. Reprinted from the Ophthalmic Record, 1894.

Immediate Capsulotomy following Removal of Cataract. By L. Webster Fox, M.D. Reprinted from the Medical and Surgical Reporter, 1894.

Some Anatomical and Surgical Relations of the Parts involvrd in the Operation of Intra-cranial Neurectomy of the Fifth Pair of Nerves and Removal of the Gasserian Ganglion. By William J. Taylor, M.D. Reprinted from the Trahsactions of the Philadelphia County Medical Society, 1894.

On the Absorption of Iron in the Animal Body. By A. B. McCallum, M.B., Ph.D. Reprinted from the Journal of Physiology. 1894.

Thirteenth Annual Announcement of the College of Physicians of Chicago, Session of 1894–95. Chicago: Published by the College, 1894.

Transactions of the Vermont State Medical Society for the Year 1893. Published by the Society.

Diseases of the Nose and Throat. By F. De Havilland Hall, M.D., F.R.C.P., Lond. Philadelphia: P. Blakiston, Son & Co., 1894.

The Operative Treatment of Internal Hemorrhoids as Practised by American Surgeons. By Clause A. Dundore, M.D. Reprinted from Mathews' Medical Quarterly, 1894.

Contribution a l'Étude de l'Ulcère Perforant de la Cloison du Nez. By Dr. E. J. Moure. Paris: Octave Doin, 1894.

Congenital Occlusion of the Posterior Nares. By William Scheppegrell, A.M., M.D. Reprinted from the Annals of Ophthalmology and Otology, 1894.

Albany Medical College, Catalogue for 1893–94 and Announcement for 1894–95.

Seventy-fourth Annual Announcement of the Philadelphia College of Pharmacy, 1894.

The Martindale Herbarium. Reprinted from the American Journal of Pharmacy, 1894.

Nuovo Metodo di Cura della Tubercolosi Polmonare. Per il Dottore Carasso Giovanni Michele. Estratto dal Giornale Medico del R. o Esercito e della R. A. Marina, 1894,

Epidemic of Smallpox in Muncie. Pamphlet. Indianapolis: Wm. E. Burford, 1894.

The Eye-Affections of Diabetes. By Harry Friedenwald, A.B., M.D. Reprinted from the Maryland Medical Journal, 1894.

Discussion on the Prevention and Communicability of Phthisis Pulmonalis before the Michigan State Medical Society. Remarks by E. L. Shurly, M.D. Reprinted from the Proceedings of the Michigan State Medical Society, 1894.

Fifty-fourth Annual Announcement of the Missouri Medical College, Session 1894–95, and Catalogue of Session 1893–94. St. Louis, Mo.

A Case of Cysticercus of the Vitreous. By W. Cheatham, A.B., M.D. Reprinted from the Annals of Ophthalmology and Otology, 1894.

Manhattan Eye and Ear Hospital Reports. No. I. New York, January, 1894.

Department of the Interior, Census Office. Vital Statistics of New York City and Brooklyn, covering a Period of Six Years ending May 31, 1890. By John S. Billings, M.D., Surgeon U. S. A., Expert Special Agent. Washington, D. C.: Government Printing Office, 1894.

The Retrospect of Medicine. A Half-Yearly Journal, containing a Retrospective View of Every Discovery and Practical Improvement in the Medical Sciences. Edited by James Braithwaite, M.D., Lond. Vol. cix. January–June, 1894. London: Simpkin, Marshall, Hamilton, Kent & Co., Limited, 1894.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

REMARKS ON PSEUDO-MEMBRANOUS CROUP AND DIPHTHERIC CROUP, AND THE VALUE OF INTUBATION.[1]

BY FRANCIS P. BALL, M.D.,
OF LOCK HAVEN, PA.

THE two principal points which I think we should consider and discuss to-day are the identity or non-identity of diphtheric croup and pseudo-membranous croup and the value of intubation in these cases.

When we consider the wonderful advances made in bacteriology in the past few years, and the ability of the bacteriologist to designate the exact micro-organisms which are the cause of many diseases, and especially when we remember that the specific microörganism of diphtheria is a well-recognized bacterium, it would seem as though the first proposition for discussion were useless; for the presence or absence of that bacterium should settle the question as to the identity of the two diseases. But such is not the case. A review of the literature of the subject will show quite a diversity of opinion on this point, with an array of substantial reasons, both for and against the opinion.

In France, where diphtheria was known and studied long before it was recognized in England or in this country, writers on this subject, I believe, are almost a unit in their belief that all cases of laryngeal croup are diphtheric; and their writings and experiences have had an effect upon the Germans, who hold the same belief; and to some extent, though not so universally, upon the English, many of whom also believe in the identity of the two diseases. Mackenzie refers to the influence of the experience of the French in his argument supporting the unity theory, and gives them the credit just referred to.

In this country, however, pseudo-membranous laryngitis was recognized as a well-defined pathologic condition, its clinical features carefully observed and accurately recorded by competent physicians long before diphtheria invaded our land. As remarked by J. Lewis Smith, it is impossible to suppose that all these cases coming in the hands of able practitioners, as they did, should have been examples of unrecognized diphtheria primarily affecting the windpipe, and none of them showing the symptoms of faucial diphtheria. It is impossible to suppose that so many able observers should have been so completely deceived in their clinical study of the disease, and it is also impossible to suppose that so many cases as are recorded and were under observation should have been primary laryngeal diphtheria, for we know that it is not by any means the rule, nor does it occur in many cases, that the diphtheric pseudo-membrane forms primarily in the larynx. The result of the early experience and study of membranous croup, when diphtheria was an unknown disease in this country, has, I suppose, had much to do with the faith many American physcians have in the dual theory. And this early experience is to me a strong argument in favor of that theory. It is no argument to the contrary to say, as is so often done, that, because croup has increased vastly in numbers of cases since diphtheria was introduced into this country, therefore diphtheria is the sole cause of croup. It only argues that diphtheria is another factor in the production of croup, and that the larynx is only another field for the development of the diphtheric membrane. But it would seem as though the careful bacterial study of these cases should elucidate the point which has been discussed by many writers, and settle it beyond dispute. As Osler remarks, work in this field is very much needed.

The Klebs-Loeffler bacillus is the bacterium of diphtheria, and is found in all cases of diphtheric croup. When found, therefore, in any case of membranous croup, it of course proves the disease to be diphtheric. But it is not found in the fibrinous exudation of membranous croup. There are various cocci found, the staphylococcus and streptococcus, and among others the streptococcus pyogenes, but not the true bacterium of diphtheria.

If this proposition can be established, if it can be shown that in a certain class of cases the Klebs-Loeffler bacillus does exist, and in a certain other class it does not exist, there should be little difficulty in settling the question of identity or non-identity of the two diseases. The anatomic appearances of the two diseases are so nearly identical that if there is any difference it is not distinguishable, and unless they can be differntiated bacterially, as suggested, the question of unity must still remain open.

I find recently published the following results of

[1] Read before the Clinton County Medical Society, August 15, 1894.

the work of different observers bearing on this point of the bacteriology of diphtheria, which in this connection lead to interesting conclusions: Baginsky, of Berlin, examined 154 cases of diphtheria, and found the Klebs-Loeffler bacilli in 118, and none in the other 36. Prudden, of New York, examined 24 cases of diphtheria, complicating or following scarlet fever, and found no Klebs-Loeffler bacillus. Martin examined 200 cases, and found the characteristic bacillus in 121, leaving 79 without the diphtheric bacterium. Park, of New York, found it in 129 cases, and absent in 79. Thus, in a total of 534 cases of what was diagnosticated as diphtheria by different observers, the Klebs-Loeffler bacillus was present in 366 and absent in 168. With this array of cases, and their bacteriologic examination before us, let us refer to the rules formulated by Koch for the establishment of a complete chain of evidence as to the production of a disease by any special micro-organism. They are as follows, viz.:

1st. The presence of the organism in all cases of the disease, and in such distribution as will explain the lesion.

2d. The isolation of the organism in pure culture.

3d. The reproduction of the disease by inoculation with the isolated organism, and the presence of the latter in the tissues of the inoculated animal.

It is only necessary to apply the first of these rules to the foregoing cases to force us to the conclusion that we either have two diseases diphtheric in character, but quite different in their bacteriology, or that the Klebs-Loeffler bacillus is only accidentally present, and has really nothing to do with the case.

Few of us, I think, would have the temerity to assert that the latter part of the proposition is correct, and consequently we must conclude that there are two diseases diphtheric in nature and very similar in their manifestations, yet differing quite materially in their bacteriology; the one a contagious disease, the other not, and, as has been shown in a further report of the cases referred to, the one a much milder disease and more prone to recovery.

The existence of two diseases having the same physical appearance but differing in their bacteriology, the one a true diphtheria, and the other a false diphtheria, has been recognized lately by the Chief of the Bureau of Bacteriology of Brooklyn, and the difficulties of diagnosis have been acknowledged to the extent of establishing a method of bacteriologic examination of all cases of suspected diphtheria at public expense. In a recent journal I find that this Bureau of the Department of Health of Brooklyn recognizes the fact that

"Recent bacterial investigations have shown that a considerable proportion of the cases of pseudo-membranous and exudative inflammations of the throat and upper air-passages, commonly considered as diphtheria, and having the anatomic appearances found in diphtheria, are not true, but false diphtheria. On the other hand, it has been shown that a considerable proportion of the cases which are apparently false diphtheria prove, on bacterial examination, to be true diphtheria. While in true diphtheria the mortality is very high and the danger of transmission to others is very great, in false diphtheria the mortality is low and the danger of infection slight."

These statements and the recognition of a true and a false diphtheria, the one a disease in which the Klebs-Loeffler bacillus is found, and the other in which various microörganisms, but not the diphtheric bacterium, are found, may account for a statement often made to me by a member of this Society, that in Kansas, where he formerly practised, his cases of diphtheria were much milder and the recoveries more frequent, so that death was seldom expected from a case of diphtheria in that locality. Such cases did not differ in their physical aspect from the diphtheria seen elsewhere, and which is so much more fatal, but no doubt would have differed very essentially if examined bacterially.

If it is true that there is a true and a false faucial diphtheria, are we not justified in the belief that there is also a non-identity of the two diseases under discussion; or, to be more moderate, are we not correct in at least considering the question still open? The truth is that the number of cases of laryngeal croup examined for the purpose of elucidating this point is yet too small for positive conclusions, and it is a matter of surprise that there has not been a greater amount of investigation on this subject by bacteriologists. The question of the bacteriology of the disease seems to me in our present knowledge to settle down to the statement, the author of which I cannot now recall, viz: "If the Klebs-Loeffler bacillus be accepted as a *sine qua non* in the etiology of diphtheria, then croup (pseudo-membranous laryngitis) must necessarily be separated from it." Clinically, there is a difference in the symptomatology of the two diseases more easy to describe than appreciate, but the dissimilarity does certainly exist. I must confess, however, that my own experience is that of all with whose views on the subject I am familiar, that it is no easy task to differentiate between pseudo-membranous croup and primary laryngeal diphtheria. This fact is illustrated in Case VI reported herewith. In this case I was as careful as I could be in my efforts at making a diagnosis, and had the assistance of several other physicians, and yet the results, much to my sorrow and chagrin, showed that we were mistaken.

To summarize and abbreviate as much as possible, the clinical differences consist in about the following points, viz:

1. Membranous croup usually begins in the larynx, and the fauces are but slightly if at all effected.

An examination of the fauces in a vast majority of these cases reveals nothing. There may be very little increased redness and almost no swelling.

2. Croup is not infectious.

I have attended, and so have many others, case after case of pseudo-membranous laryngitis in which there was every reason to expect other children to contract the disease if it were contagious, and yet no such result has followed. This point is well illustrated in the following cases, with the exception of one in which an error of diagnosis is admitted. It is said by Dr. J. C. Wilson in Pepper's *System of Medicine*, that cases of tonsillar diphtheria also occasionally run their course without infecting others, though there may be exposure of susceptible persons. But it is admitted that diphtheria is an infectious disease, and the instances of escape of susceptible persons are exceptional; whereas, in the experience of the physicians of this city, at least, the rule in membranous croup is that the affection is non-infectious, and susceptible persons are exposed with impunity.

3. Croup has none of the serious asthenic symptoms of diphtheria.

All the serious symptoms which arise in croup are due to the obstruction of respiration, and therein alone lies the danger.

4. Croup is not followed by paralysis.

In contradiction of this statement, Mackenzie says that the reason for this is that about all cases terminate fatally, but in those cases which recover paralysis does occasionally occur. His article was written before intubation was extensively done, and consequently there were but few recoveries. Since then many cases have been saved by this operation; but I have learned of but few cases of paralysis within my own experience or that of others, and in those cases we are willing to admit that the disease was probably diphtheric, for it must be borne in mind that we do not assert that cases of pseudo-membranous laryngitis are never diphtheric and that we are painfully conscious of the difficulties of diagnosis.

5. Croup is a sthenic disease, while diphtheria is adynamic.

6. Croup is a local disease.

Whether diphtheria is first local and then general, or *vice versa*, is still a disputed point, but it is a fact that it is ultimately constitutional. No such statement substantiated by sufficient proof can be made in regard to croup.

7. The lymphatic glands are not affected in croup, but are enlarged in diphtheria.

This is explained by Mackenzie and others, by citing the well-known fact that there is no communication between the mucous membrane of the larynx and the superficial cervical glands.

8. There is no albuminuria in pseudo-membranous croup.

I am sorry the urine was not examined in all of the cases here reported, but this paper was not contemplated at the time the cases were under observation. The examination was made in only one case, and that was diphtheric, and showed a quantity of albumin.

While, then, on these grounds of bacterial and clinical difference, we argue the non-identity of the two diseases, it must still be admitted that it is very difficult and, in many cases, impossible to diagnosticate between cases of primary laryngeal diphtheria and pseudo-membranous croup. One of the cases here reported shows this difficulty, for after being carefully examined by several physicians and pronounced pseudo-membranous croup, subsequent events proved it to be diphtheric. This difficulty of diagnosis is spoken of by most authors, and in fact, is used as an argument for the identity of the two diseases.

This difficulty of diagnosis being true and an admitted fact, I fully indorse the action of the New York Board of Health in designating all cases of croup diphtheric, as being the safest method under the circumstances for the avoidance of possible risk of contagion. In fact, I would urge upon all, in view of my own experience, the propriety of isolating all cases of croup, and in future I shall certainly do so myself, though this is not an admission of the identity of the two diseases, but only a confession of the difficulty of diagnosis.

For the purpose of illustrating some of the points enumerated, namely, the non-contagiousness of croup, clinical history, pathology, difficulties of diagnosis, and also the results of treatment, I call attention to the following cases :

CASE I.—Daughter of Geo. G., aged six years. The brother had died a week or ten days previously of diphtheric croup. She had no deposit on the fauces, and I do not recall any glandular enlargement; nevertheless, considering that her brother had died of diphtheric croup a few days before, I felt justified in pronouncing her case also diphtheric croup. There was no fetor of the breath, such as usually occurs in diphtheria, nor was the constitutional disturbance in any way different from what we would expect in a case of pseudo-membranous laryngitis. The usual remedies failed, and I attempted intubation with the assistance of Dr. Watson. The operation was a complete failure. At that time I thought it was on account of loose membrane filling the tube, thus interfering with respiration, but now I believe it was want of skill in introducing the tube, and have my doubts whether it was in the windpipe at all. It was my first case of intubation, and I have learned a good many things about the operation since.

CASE II.—A son of John C., aged seven years,

was taken with symptoms of croup, and the disease rapidly developed, so that there was no difficulty in diagnosticating his disease as membranous croup. There was no offensive odor of the breath nor glandular enlargement, and the constitutional disturbance was mild, the temperature not running much above 101° or 102°. His brother played around him, kissing him and inhaling his breath, and in fact no effort was made to keep them separated, nor were any disinfectant measures used. His brother and some other children who were allowed the freedom of the sick-room without restraint did not take the disease, nor did any of them have the least sore-throat. I was somewhat anxious to know whether they did or not, and so kept myself informed in regard to all who came in contact with the patient. With the assistance of Dr. Armstrong I attempted intubation in this case. Whether the tube was in the larynx or not I am not prepared to say, for at that time my knowledge of the landmarks was not very accurate. But this I do know, that with a mighty effort he coughed up the tube and with it a membrane several inches long and a perfect cast of the windpipe. He died, however, of exhaustion the next day. In this case, as in case No. 1, the operation was too long delayed even if skilfully performed, to be of any service, deep cyanosis having occurred and mucous râles being distinctly heard over the lungs in both cases.

Case III.—A Russian Jewish boy (son of A. S.), aged five years, deaf and dumb, was taken with croup-symptoms, and Dr. Watson being called, diagnosticated the case as one of membranous croup. I saw the child the next day with the doctor and confirmed his diagnosis. We intubated him, and he recovered. No precautions were taken to keep the other children away, and the surroundings were the most unhygienic that can be imagined. Though other children had free access to him no other cases occurred in the family or neighborhood. A peculiar accident happened in this case. The little fellow being deaf and dumb could not be made to understand that he was not to disturb the string, and in some way he managed to chew the string off and finally to get the tube into the esophagus and swallow it, passing it by the rectum some days after. That it was really in the windpipe is proved by several circumstances. The breathing was much improved after its introduction, and he had the peculiar metallic ring in his voice. He vomited before he was put to bed, so that if the tube had been in the esophagus, instead of in the windpipe, he would certainly have thrown it up. While the tube was in position with the string fixed to his ear he was given liquid food, which he swallowed easily, and this he could not have done had the tube been in the gullet. I mention this accident, as it was a peculiar one and because it had afforded some amusement to my friends. I was especially chagrined at it, as it was my first case of intubation in which the patient recovered.

Case IV.—A daughter of Charles G., aged four years, was taken sick with vomiting and fever, and the parents thought also sore-throat. I was called to see her in the evening and found the child asleep on the mother's lap. When I attempted to examine her throat she struggled and resisted so that I could not see what her condition was. I intended to see her the next day, but the father came to see me and said she was up and running around and that I would not need to call. On the fourth day of her illness, however, he came to see me again and said that she had lost her voice, and, immediately suspecting the case to be one of true croup, I at once went to see her. I found her running around the room, apparently well, except that she had lost her voice. An examination showed that she was suffering with diphtheric croup, the fauces and tonsils being covered with the membrane. She was immediately put to bed and a very serious prognosis given. She was isolated from the rest of the family and given mercuric chlorid and tincture of ferric chlorid, and a spray of bichlorid was also used. On the fifth day respiration was so much interfered with that with the assistance of Dr. Watson I intubated with the most gratifying results, the little one getting so much relief that she herself said "I'm better." The tube remained in place and gave every satisfaction until the seventh day (two days) when it became filled with membrane and mucus, and after a while was expectorated along with shreds of membrane. The respiration again becoming labored the tube was re-introduced, with complete relief of the dyspnea, but the child died on the following morning, not from interference with respiration, but from the toxemia of the diphtheric poison.

Case V was a son of S. E., aged five years, seen by Dr. Watson, and a diagnosis of pseudo-membranous laryngitis was without difficulty made. I saw the case in consultation on the next day, and did not hesitate to confirm the diagnosis, and that evening performed intubation. The tube remained in place for four days, during which time there were no untoward symptoms, the little fellow feeling well, and expressing a frequent desire for something to eat, and making a complete recovery. There was no effort at isolation, and though other children had frequent communication with him no other cases developed.

Case VI.—A son of G. W. B., aged four years, had been sick two days previously to my visit, with croupy symptoms and fever, but had not complaind of sore-throat, nor was there any enlargement of the cervical glands. There was no especially offensive odor to the breath, but on inspection of the fauces there was distinctly visible a small white patch of pseudo-membrane on the posterior and inferior aspect of each tonsil. The systemic disturbance was slight, the temperature being 103° in the axilla, and digestion and appetite not more impaired than would be expected with such a febrile reaction. I am now convinced that I made a mistake in diagnosis when I pronounced the case one of membranous croup. No precautions were taken to prevent the other children from having access to the boy, and the consequence was that several cases of diphtheria of a mild type, and one of diphtheric croup, to be referred to again, followed this case in the same family. My only justification is that the case was seen by a number of other physicians, and the diag-

nosis was confirmed by all. It certainly was not secondary to faucial diphtheria, and was so mild in all the symptoms, except those of obstruction, that it was difficult to realize that it was actually a case of diphtheric croup affecting primarily the larynx. The interference with respiration was so marked and continuous that in the presence of a number of physicians I intubated him. He was given tincture of ferric chlorid and mercuric chlorid, and allowed to inhale the vapor of slaking lime. The tube remained in place for four days, the temperature gradually fell, and as there were no contradicting symptoms the tube was removed at the end of this time, and with the exception of the fact that about this time he developed measles, through which he had to pass in the usual way, he made an uninterrupted recovery.

Case VII.—A son of W. H., aged seven years, was seen by Dr. Watson on April 29th. An inspection of the fauces revealed diphtheric membrane covering the tonsils and palate, and this with the interference of respiration, loss of voice, rapid feeble pulse, and temperature of 103°, made it very easy to diagnosticate the case as one of diphtheric croup. The boy had been sick less than twenty-four hours when the physician was called, and at that time he was croupy, so that the probabilities are that the membrane was formed previously in the larynx, or at least at the same time that it formed in the fauces. The child was completely isolated from the other children of the family, and no other cases followed. He was given the usual course of treatment, but it proved of no avail, and two days after he became ill the obstruction to respiration made it necessary to intubate, which we did successfully and with complete relief to his breathing. The tube used, however, was too small, and he coughed it out about six or eight hours afterward. A larger one was introduced and remained. A few days afterward he developed measles with catarrhal pneumonia, from which he died four days after intubation. The breathing was not in the least obstructed, and he died just as he would have done from pneumonia unaccompanied by croup.

Case VIII.—A son of A. F., aged twelve years, showed croup-symptoms, and Dr. Corson, of Charlton, was called. The boy had a moderate elevation of temperature, no swelling of the cervical glands, no offensive odor of the breath, and no deposit of membrane on the fauces. Dr. C., who is a strong advocate of the diphtheric origin of all these cases, confessed that this was different in its clinical features from the cases of diphtheric croup which he had seen before. When called in consultation with him I fully agreed in the diagnosis of pseudo-membranous croup. Obstruction to respiration had become so serious that it had been feared he would not be kept alive until I should arrive, and so we proceeded with intubation. The child made a complete recovery, and in four days the tube was removed. He was not isolated, and, so far as I know, no other cases can be attributed to him as the source of infection, though there was ample opportunity if the disease had been contagious. A peculiarity of this case was the age of the patient. He was the oldest child I ever saw with pseudo-membranous croup. Cases at this age are certainly very rare.

Case IX.—A son of R. C. H., aged six years, was taken with symptoms of catarrhal croup some two weeks after an attack of measles. He had been sick several days when his father came to me for some croup-medicine, never thinking of membranous croup, but incidentally and rather accidentally remarked that the little fellow had lost his voice. My suspicions were at once aroused, and on visiting him my fears were confirmed, though I had some difficulty at first in deciding between catarrhal and pseudo-membranous croup. There was no deposit in the fauces. The temperature was 101° under the tongue. The boy was given tincture of ferric chlorid and mercuric chlorid, with inhalations of lime-water and carbolic acid. He was not isolated, and his sister played with him, and once I found her lying beside him. Other children also were admitted to the room. No other cases followed. Obstruction to respiration became so alarming that intubation became necessary on the third day after I was called, which I performed with the assistance of Dr. Watson and my student, Mr. Salmon. Rapid recovery ensued.

Case X.—This was the youngest child I think I ever saw with membranous croup, being only sixteen months old, small for its age, and of a strumous diathesis. The parents not appreciating the gravity of the disease had neglected it till the last minute. With the assistance of Drs. Watson and Lichtenthaler I intubated, but not without a good deal of difficulty. When I saw the child a few hours afterward its temperature was 105° in the groin, and while respiration was not obstructed, it breathed 74 times a minute. It died seven hours after intubation, but, much to the parents' satisfaction, was relieved of the dyspnea.

Case XI was a son of G. W. B., aged two years. This is the case referred to in reporting Case V, and occurred in the same family just two months later. In the meantime, however, there had been several cases of diphtheria of a mild type in the family, and I had urged the isolation of the affected children without avail, though as the original source of the disease was an old partly filled well into which the wash-water and refuse were thrown, and which communicated with the house by a pipe, and which I had tried in vain to have removed, they would probably have taken the disease even if they had been isolated. This child when first seen had faucial diphtheria, but no symptoms of croup. After a few days' illness, however, he began to be croupy, and his voice was markedly changed. On "flood Monday" he became so croupy and his respiration so labored that intubation was necessary. The house being surrounded by water, Dr. Watson and I got into a boat, went out, and performed the operation. On the fourth day after intubation râles were heard all over the lungs, and little air seemed to enter the vesicles. I thought that possibly the tube was filled with mucus and membrane, and removed it, but without relief, and the child died the same evening. Evidently the deposit had extended to the bronchial tubes, and I have no doubt even into the smaller ones.

On analysis of the foregoing cases, we find that five were diphtheric and six were not, and that in all except one of the former isolation was enforced so that no other cases developed from them; but in the latter, in those cases diagnosticated as membranous croup, no effort was made to keep other children away, and yet in no case except the one referred to as a mistake in diagnosis did any other children contract the disease or any sore-throat, though in every instance there was exposure of susceptible persons. On this fact, as well as the clinical history, is based the supposition that the diagnosis in these cases was correct. The one case in which a mistake was made I now believe could have been diagnosticated properly if due importance had been attached to the small speck of membrane on each tonsil. Though it was not larger than a grain of wheat, I believe such a deposit is almost diagnostic of diphtheria, for as far as I can now recall I think I never saw a deposit on the tonsils in pseudo-membranous croup.

Clinically, it may be noticed that in these six cases of membranous croup there was no deposit of membrane in the fauces, a fact which seems a strong argument in favor of the diagnosis, and especially so when we recall that in 156 cases of laryngeal diphtheria referred to by Dr. Northup, in only one was the membrane in the larynx alone, showing the great tendency to spread to adjoining parts in diphtheria as contrasted with the local tendency of membranous croup.

Of the five cases that recovered not one had paralysis of any kind.

Of those cases that recovered only one was an example of diphtheric croup, and of those that died all but one was diphtheric, the remaining one dying from a late operation in an enfeebled child of extreme youthfulness.

In closing, I wish to make a few remarks on the value of intubation in these cases.

O'Dwyer estimates that one child in ten gets well of membranous croup, whether diphtheric or pseudo-membranous, under medical treatment, but from my own experience and that of others with whom I have been intimately enough associated to know of their experience, I am convinced that when obstruction does really exist, when there is a pseudo-membrane actually formed, this percentage of recoveries is too high. And moreover I am convinced that when recovery does occur it is more by the accidental removal of the obstruction or by the *vis medicatrix naturæ* than by the potency of any drug or plan of medical treatment we can select. But even admitting that one in ten recovers, the mortality is still wofully high, and anything that will reduce it is certainly to be sought after most diligently. Intubation has reduced the mortality to 26.77 per cent., or roughly estimated, about one in four recovers after this operation, which is quite a fall in the death-rate, as is readily perceived; but I believe as the operation becomes better known, and is consequently not held in reserve to be used as a last resort, but, on the other hand, is performed early, the mortality will be still greatly lessened.

If we refer to the cases here reported and exclude the first two cases, which should not be included because they were not (for the want proper skill) intubated at all, and should not, therefore, be included in the intubations, we see that five of the nine cases intubated recovered, 55.5 per cent., or more than double the proportion of successful operations as published in the books. Of course, the number is too small to make the results of much statistical value, as the next series of cases may reduce this favorable showing considerably, but I attribute the results to the fact that in all cases an operation was urged as soon as the obstruction became very decided and before the cyanosis became too pronounced. I believe that one of the cases (Case X) would at least have stood a better chance for recovery had I seen it earlier, notwithstanding its extreme youthfulness, being only sixteen months old, and of a strumous diathesis. I saw it only nine hours before death, and it died seven hours after intubation.

Even in the cases in which intubation failed to cure, only in one case did it fail to give relief, relief most gratifying to parents and attendants, and no doubt, still more gratifying to the little sufferer. In the case in which it thus failed to relieve I am satisfied tracheotomy would also have failed, as it was quite evident the membrane had extended to the bronchial tubes, and, it seemed, also into the smaller branches.

One of the great advantages of intubation is the willingness of parents to permit it, and if physicians would be less afraid to propose it I am sure there would be more early operations, and consequently more recoveries.

RHYTHMIC HEAD-MOVEMENTS ASSOCIATED WITH NYSTAGMUS OCCURRING IN INFANTS AND YOUNG CHILDREN.

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Nystagmus associated with rhythmic movements of the head is a rare affection of infancy and childhood. The occurrence of nystagmus alone is not uncommon; we find a plentiful literature on this subject. Not so with the combined symptoms. It has been my good fortune to have met and studied a number of cases of these rare associated nervous disorders of the eye and head, in the service of Dr.

Henry Koplik, and it is the object of this paper to call attention to these cases in an analytical critique of their leading symptoms.

The most constant phenomenon in these cases, and one that immediately attracts attention, is the rhythmic oscillation of the head, either in the horizontal or vertical direction. Sometimes a combination of these movements has been observed. The eye-disorder is a nystagmus, occurring either at the same time with the head-movements or independently of them.

Ebert and Faber called attention to these cases many years ago. Henoch, under the title of *eclampsia nutans*, mentions a class of cases similar to these. Dr. Stephen Mackenzie and Dr. Gee have each reported two cases which must be put in this category. Dr. Gordon Norrie, several years later, in the *Ophthalmic Review*, cites cases of this type. The first American observer to publish a case, was Dr. A. Caillé, in 1890. Shortly following this there appeared Dr. W. B. Hadden's first series of cases, followed by a second series about two years later. Dr. Hadden's studies are by far the most complete and valuable contributions that have been published on this subject.

In the following series no two cases are identical in detail; their similarity is, however, sufficiently evident to justify considering them all of the same class:

Case I.—Celia S., aged seven months, was seen for the first time on April 7, 1894. The family history is negative; the child is a breast-fed baby, and has always been well; when five months old she fell from her chair, and the next day the mother noticed both head-movements and eye-movements; the latter were almost incessant; they have improved somewhat; the head-movements are about the same as at first. The examination showed a healthy child with rachitic beading of ribs and enlarged epiphyses. The head-movements are both lateral and up-and-down. The former are fairly rhythmic, occurring in series of about five or six, the first two describing a larger arc, each one growing shorter, the last being but a slight movement. Then there may be a nod or two, or a repetition of the previous rotary movements. These movements are much alike in all the cases, and any deviation will be noted. The head-shaking is increased whenever the child wishes to direct her attention to anything, or when she attempts to accommodate at a distance. Blindfolding causes complete cessation of the head-movements. The nystagmus is marked and very rapid, both horizontal and vertical, more constant in the right eye. Forcibly restraining the head does not affect the nystagmus; both head-movements and eye-movements cease when the child lies in her crib. It was noted that the room in which the child lived was unusually dark, a kerosene lamp being kept burning the entire day; moreover, the mother very rarely took the child out in the air. On April 12th the child was seen again. The nystagmus sometimes preceded the head-shakings. A lighted candle held near the eye and then at a distance, then slowly moved up-and-down, to the right, and to the left, showed that the head-movements increased when the child was looking at the candle at a distance of eight or nine feet. The same test was made with a bell and a bright red apple, and the results were the same. The pupils react to light and distance. The child was seen about every ten days. On May 4th two teeth, lower central incisors, were noticed. The nystagmus was somewhat improved. The muscles of the back of the neck were somewhat rigid. On May 25th the child fell from her chair again; for a few days the nodding and nystagmus were increased. On June 6th the nystagmus was less frequent, and the head-movements were rotary; no nodding was observed. On June 18th the head-movements were less frequent, the nystagmus still present. On June 30th the head-movements were not observed; there was occasional nystagmus, more noticeable in the right eye. On July 12th the child was well; neither movement nor nystagmus was observed; the mother said that she had noticed neither for one week.

In brief, we have in a rachitic child, giving a history of traumatism, rhythmic head-movements, nodding and rotary, also a horizontal and vertical nystagmus more marked in the right eye; the nystagmus increases when the patient accommodates for distant objects, and this may or may not be synchronous with the head-movements. Both disturbances gradually improved, then ceased, the nystagmus existing a few days after the head-movements had discontinued.

Case II.—Jenny S., aged seven months, is a breast-fed baby, bright, but a very restless child, and in perpetual motion. The mother is a very nervous, hysterical woman; two of her previous children died of convulsions. The mother has noticed a shaking of the head for the past three months. The fontanel is depressed and large; the epiphyses are large; there are no teeth. There is no traumatic history. Rotary movements of the head exist the same as in Case I, except that occasionally the child gives a quick forward jerk of the head toward the right side. The nystagmus is horizontal, occurring at the same time as the head-movements. On April 10th the candle, bell, and apple were used as in Case I. The head-movements increase when looking at a distance; nystagmus is observed independently of the head-shakings. The pupils react perfectly to light and distance. Blindfolding the child causes discontinuance of the movements, and the same is found to be the case when lying down. On June 6th the child was seen at intervals, but nothing new was noticed. On June 15th the muscles at the back of the neck are found to be slightly stiff; an object held close to the eye causes all motion to cease. The child wakened from a sound sleep, and for about two minutes nothing abnormal was noticed; when she began to observe the objects about her, movements returned.

On July 12th the child is better; the mother says that some days the head is like that of other children for three or four hours at a time. The head-movements are indisputably less frequent; nystagmus was observed twice in ten minutes. The child has no teeth as yet.

In this instance we have a somewhat rachitic child, with lateral head-movements and an occasional short, sharp twist of the head toward the right side. A horizontal nystagmus exists simultaneous with the head-movements and in the same direction. The child improved, but so far recovery is incomplete.

Case III.—Heyman K., aged ten months, healthy until five months old, when he had a fever which lasted a week, and in the course of this week he had one convulsion; since that time he has been well. One other child of the family has rachitic paraplegia. The patient is breast fed. The derangement of head and eyes has existed two months. On April 10th examination showed a large square head, the fontanel large, the jaw quite square, but an absence of teeth; the ribs are beaded, the abdomen large and very tympanitic, the glands at the angle of the jaw enlarged. Head-movements exist as in Case I, that is, both rotary and nodding; the child holds his head slightly to the left side; bandaging has the same effect as in previous cases. The nystagmus is horizontal and vertical, not very rapid, can be counted readily, and is most marked on deviation of the eyeballs to the right or to the left—what is known as external nystagmus. Extreme deviation to the right causes incessant movements of the eyeball, that of the right eye being the more rapid. There is a tendency toward rolling the eyeballs upward and to the left, and when this occurs there is no nystagmus. The experiment with the candle, bell, and apple show an increase of the nystagmus on looking forward, while on looking downward the vertical nystagmus only is more frequent. Here again head-shakings and nystagmus may be independent of each other. The pupils react perfectly. The child was seen regularly. In May the first two teeth appeared; no improvement followed. On June 18th the child was observed lying in his cradle, the head rotating from side to side the same as when in a sitting position. He was laid back in his bed repeatedly, but this did not occur again. On July 12th the child's condition was unchanged.

We have here a child with slight rachitis and giving a history of convulsions, who inclines his head slightly to the left side, and also showing the rotary and nodding movements. The eyeballs tend to roll upward to the left, while there is also a horizontal and vertical nystagmus, the former augmented by deviation of the eyeballs, especially to the right, always a more rapid nystagmus of the right eye, while the vertical nystagmus is more marked when the eyeballs are rolled downward. The movements of head and eye may or may not be simultaneous. On one occasion lateral head-movements occurred when lying down.

Case IV.—Sam D., nine months old, was visited the first time in April, 1894. The mother is very delicate. When pregnant with this child she had malarial fever during the last six months. The child was born asphyxiated, but was resuscitated in a few minutes. The patient was nursed by the mother. The child is microcephalic, the development being arrested in every respect; child is about the size of a baby one month old. The fontanel is closed; a peculiar sharp angle is formed in the middle of the forehead by the union of the frontal bones; there are no teeth; the ribs are beaded. The child cannot hold its head erect. The head falls back in a position of extreme extension, while at the same time there are rotary movements. These movements are arrested when the child is blindfolded. The eyeballs follow the light, bell, and apple, when held above the eyes, but do not follow to the side or below. Very rapid nystagmus occurs for a few seconds about once in ten minutes, is always horizontal, and unaltered by forcibly restraining the head. This child was seen three times, the condition remaining always the same. Unfortunately, it was lost sight of, owing to change of residence.

This was a microcephalic child, slightly rachitic, with the head in a state of constant extension, with rhythmic rotary head-movements, and no nodding; there was an exceedingly fine occasional horizontal nystagmus. The condition remained unimproved.

Case V.—Joseph T., aged eighteen months, was seen on May 26, 1894, for the first time. A negative family history was elicited. The child was well until three months old, when he had pneumonia, from which he recovered fully, and which was followed by a second attack when six months old; since that time he has never been strong; his first tooth appeared when one year old; there is no history of convulsions. During the last few weeks he has been attempting to walk. Examination shows the child to be very pale; he has fourteen teeth, showing rachitic ridges and discoloration; the abdomen is large; the epiphyses of the wrists and ankles prominent. Three months ago the mother noticed that the child held his head to the left when looking at distant objects; about two months ago he fell from his chair, and several days after this head-movements were observed; the eye-disturbance had not been noted by the mother. The condition was as follows: the child was sitting in a high chair, and the head held to the left side as he was looking out into the shop. There are side-to-side movements of the head, but no nodding; the rhythm was about as in the other cases. This movement is increased when attention is directed to objects at the further end of the room; blindfolding corroborates former results. The nystagmus is oblique, downward, and to the right, is exceedingly slight, in fact almost imperceptible, and, as a rule simultaneous with the head-movements. The trial with the candle, bell, and apple shows the movements, and the nystagmus increases when objects are at a distance about on a level with the eye. Forcible fixation of the head is without effect. In this instance also the living-room

is wretchedly lighted, a gas-jet is kept burning low all day, summer and winter. The child was taken up and put down in his chair several times. After a few seconds the symptoms returned, together with the peculiar position of the head; it was found that this attitude was necessary in order that the child might watch his father at work; this was also the position in which the nystagmus was most marked. The patient was seen a number of times; there was no change. On June 19th he was very restless, his skin was hot, the temperature per rectum 101°, and the symptoms the same. The child was taken ill a few days later, and died July 11th. The cause of death was not known.

This was a poorly nourished child of moderately rachitic development, holding his head to the left. A traumatic history was given, with subsequent observation of lateral and up-and-down head-movements; the rotary oscillations of the head were more noticeable when the child fixed his gaze at distant objects; in addition, a fine oblique nystagmus downward and to the right was found, and this was increased when the eyeballs moved to the right. Head-movements and eye-movements occurred independently of each other. The patient remained unimproved.

CASE VI.—Eddie H. was first seen December, 1893; the six other children of the family are rachitic. This was a bottle-fed baby and never has been strong. The mother first noticed the nystagmus in his third month, and the movements were then so rapid that the mother said it made her dizzy to watch the motions. They have continued ever since, although at present they are less marked than at first. When the child was about six months old the mother noticed the peculiar position in which he held his head. Shortly after this he had pneumonia, followed by diarrhea and complicated by convulsions. He had four or five seizures in as many days. His condition in May, 1894, when aged twenty months, shows a markedly rachitic child; the parietal bosses are prominent; he has twelve teeth; the epiphyses are very large, both of the wrists and the ankles; there is marked curving of the tibiæ; the ribs are beaded and the abdomen is large; the child is just beginning to walk. The head is moved to the left in a jerking movement when he wishes to look at any object, while at the same time there is marked vertical and occasional horizontal nystagmus; every now and then the right eyeball only seems to move. Bandaging and experimentation give the same results as in the other cases. The nystagmus was observed once or twice when the child was lying in his crib. On July 18, 1894, the condition was the same.

In this case we have a history of eclampsia in a markedly rachitic child and long-standing nystagmus. The head-movement consists of a jerking to the left, that is, a slight rotary movement. The nystagmus, on accommodating, is vertical and horizontal, exceptionally in one eye only. The nystagmus was noticed when the child was lying down. On July 18, 1894, the patient remained unimproved.

It will be noted that no ophthalmoscopic reports are made; attempts were made, but the patients failed to report at the dispensary. Such examinations were made in the cases of Mackenzie, Norrie, Caillé, and Hadden, but were of negative value so far as throwing any light on the etiology of the affection.

In every case cited there were head-movements, always rotary, in some instances also nodding; the former were by far the more frequent. Not once was there nodding exclusively. The head-shakings were augmented when the child fixed with the eyes at a distance, and were discontinued when the child was blindfolded. On one occasion only were the head-movements observed when the child was lying down. The nystagmus was always much more rapid than the head-movements, and varied in type, being horizontal, vertical, and oblique, the first form predominating, that is, the eye-movement being in the same direction as the rotary head-movement. Although, as a rule, head-movements and eye-movements were synchronous, occasionally they were independent of each other, or one slightly preceded or outlasted the other. In Case I the nystagmus was observed some days after the head-oscillations were no longer noted. In two cases movement of the globe of the right eye was the more rapid. Extreme deviation to the right caused increase in rapidity and constancy of the horizontal nystagmus in Case III, while in the same child, looking downward had a similar effect on the vertical eye-movement. In no instance did forcible restraining of the head affect the nystagmus; this is contrary to the observations of Dr. Hadden.

The presence of rachitis in every instance might be looked upon as indicating the predisposition of rachitic children to this as to almost any of the nervous disorders of infancy and childhood. Although but one patient had marked symptoms, rachitis was found to a greater or less degree in each case. This coincides with the reports of Dr. Mackenzie and Dr. Caillé, as well as with that of Dr. Hadden, who found it frequently in his second series of cases.

The family histories were negative; a personal history of convulsions was noted twice. Dr. Hadden speaks of a peculiar form of unconsciousness simulating a mild kind of epilepsy as occurring frequently; nothing of the kind was found among these cases. The children were of average intelligence.

Henoch mentions teething as a cause of this disease, but this seems coincidental rather than causal; the age at which derangement occurs covers

the period during which dentition is very active, and one would, therefore, expect the eruption of a tooth from time to time. In the case of Heyman K., two teeth appeared in June, and yet there is no improvement of the condition. On the other hand, Jennie S. is decidedly better, but has not a single tooth. Case V had fourteen teeth when the disturbance was observed for the first time.

Traumatism as a cause has been mentioned by several clinicians. Twice in the foregoing series was such an etiology traceable. In Case I a second fall during convalescence resulted in a partial relapse.

It may also be possible that the nystagmus is due to eye-strain. Dr. Hugo Magnus has recently reported a case in which the nystagmus was traced to the continued strained upward position of the eyeballs, the child having formed a habit of staring at the gas-fixtures directly over his bed. Case V, in which the child habitually kept the head in a particular and strained position, is like the case of Dr. Magnus, with the difference that in Case V the eye-strain was sideways and in the other instance upward.

It is desired, however, to call especial attention to the fact that in Cases I and V the living-rooms were most wretchedly lighted. It was found necessary to have a gas-jet burning at midday on a bright summer day if any work was being done. The mingled daylight and the gaslight gave a most imperfect and dim illumination at best. In so far as nystagmus as found in adults, most frequently in miners, is ascribed to the poor light in which they are obliged to work, it seems that here we may have an analogous condition acting as an exciting cause. In Case I, as the weather grew milder the mother took the child out in the open air; this was strongly advised. The child has steadily and rapidly improved. In Case V the mother could not find time to do this.

The probable direct etiology of this combined head-movement and eye-disturbance was pointed out by Henoch and by almost every observer since —namely, that the root-nuclei of the nerves that supply the affected muscles of the throat and neck lie in the immediate proximity of the nuclei of the ocular nerve. Any disturbance of the roots of one set might most readily affect the other. Preyor states that associated head-movements and eye-movements occur as early as the tenth week, but that not until the ninth or tenth month do they become rapidly, easily, and correctly associated. We should, therefore, expect a derangement of function most liable to occur while the function is being perfected, as was the case in the foregoing series.

The treatment resorted to by Dr. Caillé, namely, bandaging of the eyes, was based on the fact that blindfolding caused a cessation of the movements. It stands to reason that motion must cease, for in blindfolding these children they are deprived of the purposive association of head-movement and eye-movement, which light and the sense of space render possible. Improvement occurred in both of his cases in several months. Whether this was due to the procedure adopted or to the accompanying tonic treatment may be considered a moot question. Dr. Hadden, on the principle that he was dealing with an epileptoid condition, gave potassium bromid with varying results; he likewise gave tonic treatment.

We are, in these cases, dealing with a functional nerve-disturbance due to any one, or possibly to all of the causes mentioned. We have a child that shows diminished nerve-resistance, or, to put it in another way, which shows increased nerve-irritability, for which the rational treatment is a careful attending to the details of personal hygiene, especially food, sleep, and exercise. The drug-treatment, if any be given, should be directed against the rachitis; for this some stable, easily-assimilated form of phosphorus is advisable.

Bibliography.

Faber and Ebert: Annalen der Charité, 1850.
Henoch: Vorlesungen über Kinderkrankheiten, p. 177.
Mackenzie, Stephen: Lancet, 1886, vol. i, p. 833.
Gee, W.: St. Bartholomew's Hospital Reports, 1888, vol. xxii, p. 26.
Norrie, Gordon: Centralblatt für prakt. Augenheilkunde, 1888, p. 229.
Caillé, A.: Archives of Pediatrics, 1890, p. 171.
Hadden, W. B.: Lancet, 1890, vol. i, p. 1293, etc.
——— St. Thomas' Hospital Reports, 1892, vol. xxvi, pp. 205–219.
Magnus, Hugo: Centralblatt f. prakt. Augenheilkunde, 1893, pp. 361–363.
Preyor: First Five Years of Childhood, p. 64, etc.

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THE NEED OF REST IN THE TREATMENT OF HIP-DISEASE.[1]

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The object of this paper is to present upon some new and upon some old grounds a brief plea for the greatest obtainable rest to the joint in any treatment of hip-disease, whatever it is, and to point out how this maximum amount of rest may be obtained. It will be sufficient to state that I am a believer in the use of strong traction in the treatment of hip-disease, on the ground that it distracts the joint-surfaces; but that traction is in my opinion only a part of successful treatment. To some often-neglected factors I beg in the present paper to call attention, without discussing the general question of

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the treatment of the disease. The measures to be advocated are local and general. Among local measures the treatment of hip-disease by the long traction-splint (the Davis, Taylor, Sayre splint) is probably the most common method now in use in America. Sometimes this is in connection with the use of crutches, but more often without them, the child being allowed to walk upon the splint, which thus becomes a perineal crutch. Assuming what is generally allowed to be the case by all surgeons, that a diseased hip-joint should be protected from unnecessary jar and traumatism, it becomes of practical importance to inquire whether such traumatism occurs when a patient with hip-disease is allowed to walk upon a traction-splint, or whether the traction-splint is sufficient protection to the diseased hip under these conditions. It may be seen when one observes a child with hip-disease walking upon a long traction-splint that a slackening of the traction-straps occurs when weight is borne upon the diseased leg. The entire weight of the patient comes directly upon the perineal straps and the structure of the splint, and tends to diminish traction every time that the bottom of the splint touches the ground. It is obvious that unless the apparatus is absolutely rigid from a mechanical point of view this must occur. Intermittent traction upon the hip must thus occur, the femur being allowed to slip back against the acetabulum when the patient's weight is borne upon the splint and traction is diminished. Leaving theoretic considerations, however, aside, the following experiments were undertaken to show what practical effect, if any, is produced when weight is borne upon the long traction-splint in walking.

Into the webbing of the ordinary hip-extension two small registering spring-balances were inserted, and the long traction-splint was applied in the usual way. Traction was then applied to the hip. The amount of traction was shown accurately by the balances, which formed part of the extension-straps through which traction was made upon the hip.

Experiment I. Girl, six years old, with hip-disease; traction of 7 pounds shown by balance; standing on splint reduced it to 5½ pounds.

Experiment II. Girl, ten years old, with hip-disease of four years' duration; traction of 6 pounds; standing on splint reduced it to 5 pounds.

Experiment III. Girl, eight years old, hip-disease (slight); traction of 15 pounds; standing on splint reduced it to 8½ pounds; walking lowered it to 7 pounds; after ten minutes without walking or standing traction had been lowered to 11 pounds.

Experiment IV. Boy, six years old, hip-disease of one year; traction of 18½ pounds; standing on splint reduced it to 15¾ pounds; walking on splint reduced it to 11¾ pounds; after ten minutes traction had been lowered to 13¼ pounds.

Experiment V. Boy, eight years old, hip-disease for two years; traction of 18 pounds; standing on splint reduced it to 12 pounds; walking on splint reduced it to 9½ pounds; after ten minutes of walking and sitting the traction was reduced to 13½ pounds.

The experiments need very little comment. They simply show that at one time the head of the femur is pulled away from the acetabulum by a certain force, and the next minute by perhaps half that force. This intermittent pressure of the head of the femur against the acetabulum induced in this manner is in a smaller way the same process, so far as the hip is concerned, as walking upon the leg directly, a constant series of traumatic impacts being induced. This fact has often been alluded to, but has not I think, been demonstrated by actual experiment.

Without entering into the merits of those splints, with the aid of which it is attempted to fix the hip-joint by rising above the pelvis and grasping the thorax by a rigid arm, it may be stated with regard to the long traction-splint that its use as a walking-splint cannot be otherwise than imperfect, compared to its use as an instrument to produce steady traction. That intermittent pressure exists is demonstrated; that intermittent pressure cannot do good, and may do harm, seems obvious. Some writers believe that motion of the hip-joint within small limits is beneficial during hip-disease. None, however, could advocate on any scientific ground that a constantly varying traction-force could be of use. If this intermittent traction were a difficult matter to avoid it would not be worth while to spend so much time in its discussion; but the use of a pair of crutches and a high shoe on the well foot does away at once with the whole difficulty.

The matter of fixation has not been considered in this connection; the question has been purely one of traction.

As regards general measures, it may be said that hip-disease is, in most cases at any rate, a tuberculosis of bone. Like many forms of local tuberculosis it is attended with general symptoms. Among the earliest in most cases may be sudden loss of flesh, failure of appetite, and high temperature. The latter is definite and easily studied, and as a symptom relating to the general condition of the patient is of interest in the present connection.

Some years ago I called attention to the significance of the importance of high temperature in chronic joint-disease. At that time I had not a very extended series of observations, but now I am able to generalize from some 1050 observations of the afternoon temperatures of children with hip-disease and Pott's disease. For analysis there were taken from my notes at random records of 250 cases

of hip-disease. The temperatures were taken bebetween three and five in the afternoon at the Surgical Out-patient Clinic of the Children's Hospital. The same thermometer was used, and every care was taken to make the observations accurate and uniform, the rectal temperature being observed. The observations on temperature in hip-disease have covered a period of four years and are several hundred in number. They include routine cases taken as they came to the clinic, and no cases were omitted. The cases were under ambulatory traction-treatment. In the group of 250 observations which were analyzed the temperatures were as follows:

Temperature between	Per cent.	Number of cases.
98° –98.9°	13.6	34
99° –99.4°	26	65
99.5°–99.9°	18	45
100° –100.9°	33	84
101° –101.9°	7.2	18
102° –103°	1.6	4

Studying the temperature as applied to individual cases there was no question that in severe cases the temperatures were higher than in mild ones. As a prognostic indication the temperature was of much use in the early stages, because, as a rule, cases which later proved to be severe began with a temperature of 100° or more. On the contrary, cases with a mild initial temperature as a rule did well. The occurrence of a sudden rise of temperature in a convalescent case often indicated an approaching relapse. In general, the severer the case the higher the temperature. High temperature is an early symptom coincident with the initial muscular spasm.

But what is of especial interest in this connection is the fact that the temperature in the evening is lowered in most cases by confinement to bed. It has been demonstrated very often in my experience that a child attending the out-patient department has had for weeks a temperature in the afternoon of 100° or more, but that when deformity or other symptoms which necessitated confinement to bed have arisen the temperature has fallen to normal or to 99° within forty-eight hours after confinement to bed. All, I am sure, will agree that in routine hip-disease without active suppuration a high temperature is not often to be seen in hospital-wards. A similar series of charts in an out-patient department would show a noticeable rise of temperature in the great majority of all cases, mild and severe.

In the same way a restriction of the child's activity by enforcing periods of recumbency during the day will in most cases lower the temperature, although generally not to the normal. I have observed this repeatedly, and more often of late when I have been adopting this limitation of activity as a routine measure in all but the mildest cases. Unfortunately, the routine observations of temperature were abandoned some time ago, so that no extended series of figures bearing upon this subject can be given.

Putting aside, however, the demonstrable fact that this subsidence of temperature does occur under recumbency, as shown in the observations already quoted, the benefits of restricted activity can be called to the attention in another way by noting how often it is that patients with tuberculous bone-disease who are being treated by ambulatory methods improve temporarily in flesh, appetite, and spirits when confined wholly or partly to bed.

Although as far removed as anyone from wishing to advocate the treatment of hip-disease by recumbency, I would beg to call attention to the conclusions to be drawn from the facts presented in favor of restricted activity, on the ground that high evening temperature is present in nearly all cases of tuberculous hip-joint disease, and that this high temperature is in most cases diminished by partial recumbency. The system that I direct as a routine in mild cases is very simple. The child stays in bed until nine or ten o'clock in the morning. An hour's rest on the back is insisted upon during the morning and two hours of recumbency in the afternoon. The child goes to bed early in the evening, generally at seven. For severe cases longer periods of rest would be prescribed. No ambulatory apparatus is perfect, and it is obvious on general principles that a child with hip-disease cannot without harm indulge in the incessant activity of other children.

The measures that I advocate in connection with any treatment, whatever it may be, are the routine use of crutches and a shortening of the active period of the day, both of which should be adopted for the purpose of securing increased rest to the joint.

THE TRAUMATIC ORIGIN OF ERYSIPELAS.[1]

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Long before the inception of the microbic theory of infections diseases erysipelas was known to be contagious, as was the fact that wounds of the skin in certain localities and under some circumstances were liable to be followed by this affection. That eminent clinician, Trousseau,[11] declared years ago that infection was only possible through an external wound or abrasion. The results of modern bacteriologic

[1] Read before the Milwaukee Medical Society, February 13, 1894.

investigation corroborate this excerpt from ancient literature, but examination of classic literature of recent date does not show that the fact is even yet firmly established. We still read of "idiopathic" and "traumatic" forms. Senn[9] called attention some time ago to the fact that infection may arise through a mucous membrane. Yet writers on special pathology are strangely silent upon the subject of the disease originating within or infecting cavities lined by mucous membrane. Most of the cases that I have seen within late years have arisen in this manner.

The specific cause is considered to be the streptococcus erysipela is, Fehleisen,[3] (report published in 1883), or the S. pyogenes, Rosenbach[8] 1884, Passet[6] (1885), of which I have specimens under the microscope, taken from several sources. (S. pyogenes, kindly lent me by Dr. V. A. Moore, Department of Agriculture, Washington, D. C.; S. erysipelatis, prepared by Dr. H. B. Hitz, of Milwaukee.) Later writers (Eiselsberg,[2] Paret,[7] Lungelsheim,[5] Sternberg[10]), believe that these are simply varieties of the same species, that both may exist together and with other pus-microbes, and that there is no antagonism of species. Clinical evidence supports the view that under certain circumstances one predisposes to infection by the other (see Case V), and even that the original source of infection may be so modified by its environment as to give rise to distinct clinical pictures. Thus infection by erysipelas may, in one person, or in one portion of the body, produce typical erysipelas, and in another an acute suppurative process, while in a third the two conditions may coexist or follow one another. Such varied manifestations are commonly observed in phlegmonous erysipelas, and may be traced in such complications as suppurative otitis, etc. (See Cases I, II, III, V, IX.) It is possible that microorganisms may be modified by their surroundings, and take upon themselves the characteristics of other forms, the poisonous products of their metabolism giving rise at different times to varied specific effects and different diseases. Our present knowledge of the evolution of disease renders this theory tenable. Bumm and Widal[1] show that when the streptococcus is constrained to lead a saphrophytic existence in test-tube culture it loses its virulency, and Sternberg[10] evolves from this statement the deduction that the rarity of infection of puerperal cases is largely due to attenuation of pathogenic power, as the streptococcus is often found in the healthy mucous membrane of the vagina, fauces, nose, etc.

Hajek[4] (1886) and von Lungelsheim[5] (1891) state that the morphologic processes of the S. pyogenes and S. erysipelatis are similar, although their morbific qualities are different. The former is pathogenic for both mice and rabbits, while the latter is lethal to rabbits only.[5] The S. erysipelatis is said to occupy only the lymph-channels, its inoculation producing a superficial migrating dermatitis, while the S. pyogenes penetrates the tissues more deeply, travels beyond the lymphatic system, producing intense inflammation in the depth of the tissues. The latter is seen both in the lymphatics and around the bloodvessels, and often in their lumen.[4] As my subject limits me to narrow grounds, I simply refer in passing to the fact that lowered conditions of bodily health and certain toxemias (alcoholism, septic infection, etc.) predispose to this disease as well as to other troubles, by diminishing the resisting-power of the tissues.[10]

The various inoculation-experiments show that the germ must be deposited under the superficial layers in order to gain entrance to the lymphatic vessels[9, 10]. No infection can result from contact of the virus with sound skin or mucous membrane.[10] There must be a crevice in the armor into which the poison can creep. A wound of entrance always exists, but in those cases in which no solution of continuity has been observed it has been either so trivial or so small as to escape the attention of both patient and physician. The face and hands being more exposed to injury than other parts, explains the relative frequency of erysipelas in these localities. During the past five years my experience has been confined to cases incidental to other affections, or occurring after operations, the latter one of the most annoying of complications, and to which few surgeons are strangers. All of my cases were of the facial form, and upon due inquiry the starting-point in all instances was seen to be a local lesion, and in nearly all the original infection could be traced to some other case or to auto-inoculation.

CASE I.[12]—Contagion arising from abrasion in the anterior nares in a patient who was in the habit of picking the nose, and who has visited and nursed an erysipelatous patient in the neighborhood. Dr. Thomas Hay called me in consultation on account of acute suppuration in the left middle ear, occurring after extension of the erysipelas to the nasal membranes and naso-pharynx. Recovery took place after one relapse. Microscopic examination of the ear-discharge revealed several forms of pus-cocci, among them the S. pyogenes.

CASE II.[12]—Contagion arising in the naso-pharynx, occurring after removal of an adenoid growth, forming an abscess in the pharynx, the inflammation extending to the middle ears, through the nasal and buccal cavities to the face and scalp, and down the neck to the shoulders. Suppurative otitis media occurred. The general treatment was directed by Dr. W. H. Washburn. It was a most severe case, attended by one relapse. Recovery followed.

CASE III.[12]—Beginning in an abrasion of the

mucous membrane of the lower lip in a pipe-smoker, extending through the buccal cavity to the naso-pharynx, through the Eustachian tubes to the middle ears, causing suppurative disease. Extension took place over one side of the face and scalp. No history of contagion was obtained. The general treatment was directed by Dr. W. F. Miller. Recovery followed.

CASE IV.—This man was receiving hypodermatics of strychnin for simple atrophy of the optic nerves. After about a dozen injections in the temples (needles presumably disinfected and reserved for him alone), a swelling was noticed which had existed several days when a diagnosis of hypodermatic abscess was made. For this condition I felt responsible until I afterward found out that the man was in the habit of frequenting a house in which there had recently been erysipelas. The temperature rose rapidly, and my consultant, Dr. F. E. Walbridge, concurred with me that the trouble was septic infection, but on the morrow, after the patient was safely ensconced in the hospital among other special surgical cases, I was dismayed to discover that the trouble was undoubted erysipelas. The roseola extended over one side of the face, but the man made the usual recovery.

CASE V.—This man had been lying in the next bed to the previous case before a diagnosis of the specific nature of the former had been made, and before he had been isolated. Seven days before I had opened the mastoid for caries. Erysipelatic inflammation began under the bandages in the site of incision, and extended over the scalp. The case proved phlegmonous. The temperature was very high. Recovery ensued.

VI.—For a number of days I abstained from operating, and kept away from personal attendance upon the two foregoing cases, until, believing that I was well disinfected, I extracted a cataract for an old woman in a room on the same floor, but nearly one-hundred feet away from the one in which the other cases were sequestered. On the fourth day thereafter we found unmistakable signs of erysipelas in an abrasion of the skin at the external angle of the eye *not* operated upon. Extension of the roseola to the cheek followed. It was a light case, with recovery.

CASE VII.—A scrofulous child, with erosion of the anterior nares and upper lip from purulent rhinitis appeared one day with a swollen face, and was sent to Dr. Louis Frank, who diagnosticated erysipelas. Recovery followed.

CASE VIII.—The patient was an old man, whose nasal passages had been occluded for years by an enormous number of polypi, the operations for which were made daily for about a week. Considerable malodorous purulent discharge followed. After attempted disinfection the galvano-cautery was used, and two days later erysipelas appeared in the nares, extending over the face. Recovery ensued.

CASE IX.—This patient sat in the waiting-room of my office for a couple of hours, in the next chair to Case VIII before the diagnosis of erysipelas was made. For some obscure reason he had placed a large fly-blister on his forehead, which in consequence had become very sore. Two days later he appeared with swollen face and eyelids, and the condition developed into erysipelas. The patient was sent to Dr. William Meyer for general treatment. A number of localized abscesses appeared about the face and forehead about a week after the roseola had disappeared. Recovery followed.

The clinical history of these cases, taken in order of occurrence from my case-book, substantiates the various pathologic investigations, showing that in all instances of erysipelas there must be a wound of entrance. Several of them illustrate the fact that the contagion of erysipelas does give rise to pus-formation, and that infection from other sources may cause erysipelas.

REFERENCES.

1. Bumm and Widal. See 10.
2. Eiselsberg. See discussion 4.
3. Fehleisen. "Die Aetiologie des Erysipels." Berlin, 1883.
4. Hajek. "Das Verhältniss des Erysipels zur Phlegmone." Deutsche med. Wochenschr., No. 47, 1886.
5. Lungelsheim. See 10.
6. Passet. Ueber Microörganismen der eitrigen Zellgewebsentzündung des Menschen." Fortschr. der Med., Nos. 2, 3. 1885.
7. Passet. See discussion 4.
8. Rosenbach. "Microörganismen bei den Wundinfections-Krankheiten des Menschen." Wiesbaden, 1884.
9. Senn, "Surgical Bacteriology." Philadelphia, 1889.
10. Sternberg. "A Manual of Bacteriology." 1892.
11. Trousseau. See 9.
12. Würdemann. "Erysipelas and Acute Suppuration in the Middle Ear." MEDICAL NEWS, November 28, 1891.

CLINICAL MEMORANDA.

ONE CASE OF COMPOUND DEPRESSED FRACTURE OF THE SKULL AND ONE OF A BULLET-WOUND IN THE BRAIN.

BY J. S. TRIPLETT, M.D.,
OF HARRISONVILLE, MO.

ALMOST every personal experience should be of interest to us all, inasmuch as it may clear up some doubtful point and produce a clear mental picture of what is the best treatment in subsequent similar cases; moreover, familiarity with similar cases better prepares one to undertake measures in their management which one would shrink from doing were they few or seldom reported. Timidity and conservatism in surgery are accountable for many deaths; especially is this true in places remote from the large cities and hospitals. It is, however, gratifying to reflect that now these conditions obtain less than formerly, since antisepticism and improved technique are on a scientific basis. It is mainly for the purpose of emphasizing the facts alluded to that this case is reported.

On June 13th of the present year, at about 1 o'clock P.M., Fred D., eleven years of age, well developed and of healthy parentage, on going into the barn was kicked on the left side of the head by a mule. His father hearing the noise, hastened to the barn, lifted up the boy and carried him to the house, where I saw him about an hour after the inception of the injury. He was then in a semi-

conscious condition, but would answer questions on being aroused; the pupils were of equal size and reacted to light. There was no noticeable paralysis, but especial examination was not made to determine accurately as to the existence of paralysis or paresis. Inspection showed a two-and-one-half inch elliptical scalp-wound, one-and-one-half inches to the left of the median line and one inch behind the Rolandic region, with its convexity outward and forward, and a depressed fracture of the left parietal bone. The condition of the parts was explained to the parents, and operation to relieve the pressure advised, which was assented to. It was noticed that the symptoms of cerebral compression were increasing, and on two or three occasions convulsions seemed imminent.

The field was prepared for operation by washing with soap and water, then shaving around the wound for two or three inches (his hair was very short, having been cut on the previous day, and for this reason a larger area was not shaved) after which it was washed thoroughly with an antiseptic solution.

Under chloroform-anesthesia the scalp-wound was enlarged by carrying the incision toward the median line, thus making a flap which could be reflected and the fracture exposed. The bone was depressed about three-eighths of an inch below the external surface of the outer table; it was about three-fourths of an inch wide and one inch long, and beveled at the expense of the inner table. The depressed portion was comminuted and was wedged so tightly that it could not be elevated without trephining or otherwise enlarging the opening. Bone-gnawing-forceps was used in preference to the trephine, as less bone would thus be sacrificed. The depressed fragments were now loosened and removed; considerable force was required to separate the bone from the dura. The dura was of a bluish-white tint and uninjured. Pulsations were perceptible. The sharpened edges of the bone were rounded off, the parts thoroughly irrigated, a small drain of iodoform-gauze placed in the wound, and the scalp-wound closed with interrupted silk sutures, the ordinary antiseptic dressing applied and the boy put to bed in good condition.

At 7.30 P.M. the temperature was 99.5° and the boy was resting well, excepting for a little pain in the head and soreness from bruises on other parts of the body, received at the same time as the head-injury. At no time during the period of convalescence did the temperature rise above 99.5°; it was normal after the first three or four days.

The scalp-wound healed by first intention, and there was no suppuration except from a stitch-abscess; the drainage-gauze was removed on the second day, but as a small quantity of limpid fluid collected each day, a small wick of gauze was put in at each daily visitation, until June 28th, when the wound was allowed to close. Recovery was rapid and uneventful.

I believe that all depressed skull-bones should be elevated, and especially if the outer surface of the external table is on a level with or below the visceral surface of the inner table, even if no symptoms of compression or irritation are present; for subsequent trouble, such as severe headache, mental hebetude, or even epilepsy and insanity, often ensue from the irritation of the depressed bone.

The adage that "misfortunes never come singly" seems to be verified in regard to fractures of the skull for this locality—the case just reported being the fourth that has come under my observation within the last few months.

The first of these cases, seen in consultation, was remarkable, inasmuch as the majority of cases of like severity generally prove fatal in a few minutes. The patient, a healthy and well-developed man of about thirty-five years, was shot about two inches behind the left ear with a thirty-eight caliber revolver, on September 9, 1893, the ball passing a little upward and forward through the brain, and glancing when it reached the opposite side of the skull. The man was unconscious for several hours and semi-conscious for two or three days.

Immediately after the injury the wound in both the scalp and the skull was enlarged and fragments of bone and foreign objects removed. Search was made for the ball, but without avail. The nozzle of a syringe was introduced along the tract of the ball for the distance of six inches, and the parts well irrigated, after which the wound was lightly plugged with antiseptic gauze and the man put to bed with an ice-cap to his head.

The shooting occurred early in the morning, and in the evening at 9 o'clock another unsuccessful search was made for the ball, after which the tract was again irrigated and plugged with antiseptic gauze and the ice-cap applied. At the time of and before both these operations considerable brain-substance escaped; two ounces, I think, constitute a low estimate of what was lost.

The parts healed by granulation, and recovery was slow but uneventful. No sequelæ remained to locate the ball, and the only evidence that the brain had been injured was some impairment of hearing and of visual acuteness, both of which gradually improved up to the normal or nearly so.

The man is at present doing manual labor and is in perfect health, notwithstanding the fact that he carries a bullet somewhere in his skull-cavity, from which he suffers no inconvenience.

A CASE OF DIPHTHERIA TREATED WITH THE ANTITOXIN.

BY ARNOLD W. CATLIN, M.D.,
OF BROOKLYN, N. Y.

ARTHUR H., aged nine years, first complained of being unwell Saturday, October 6th. There was general malaise; the child was feverish and debilitated; there was loss of appetite, and he was disposed to maintain a recumbent posture. He was first seen on Sunday morning, October 7th. Debility was extreme, the skin hot and dry; the temperature 102°, the pulse 120. The tongue was coated and the breath very foul. Examination of the throat showed a mass of exudation completely filling the fauces, and nasal breathing was obstructed. Diphtheria of a low type was diagnosticated. He was put upon the mercuric chlorid, gr. 1/40, and tr. ferri chlor., ♏v, every three hours, and the throat was sprayed hourly with a weak solution of mercuric chlorid. He was nourished with whiskey-punch freely, and a culture-tube was immediately forwarded to the Board of Health.

I secured five grams of the antitoxin (Aronson's *Heilserum*), and gave the whole amount in one hypodermic injection between the shoulder-blades, according to the method used in Berlin, and explained by Dr. Louis Fischer, of New York. This was at 7 P. M., Sunday, when the disease had been present certainly forty-eight hours, and probably, in view of the fact that so much surface was involved by the exudate, for seventy-two hours, although no attention was called to the throat by the patient until the morning of the day the antitoxin was used.

No reaction followed the hypodermic injection. The patient passed a restless night, and was found no better on Monday morning. The report from the Board of Health as to the culture was: "True diphtheria." The cadaveric odor from the throat was almost intolerable. The heart's action was weak, and debility was even more pronounced than on the previous day. The temperature was from 100.5° to 102°; the pulse was 120 and feeble. The child positively refused stimulants in any form by the mouth. The condition of the throat made deglutition difficult. The appearance of the exudate was about the same as at the time of the injection the night before. Continuance of treatment was directed, with the constant use of hot brandy to the surface, and hot brandied cloths to the abdomen continuously. On Monday evening no progress was noted, and the case was assuming a grave aspect. The prognosis was unfavorable, and the new remedy was considered *inert*. On Tuesday morning, thirty-six hours after the use of the antitoxin, there was an evident change for the better. The temperature had fallen, the pulse was stronger, the tongue cleaner, and the exudate was loosening at the edges, and the surrounding parts looked bright and healthy. The improvement continued throughout the day. There was a free flow of saliva and mucus from the throat, but no membrane exfoliated. It appeared thinner, and was evidently disappearing.

The child was more comfortable that night, and evidences of gain in every way were noted on Wednesday morning. The temperature was nearly normal, the pulse 86, the odor from the throat nearly gone, and the membrane was rapidly disappearing. The underlying surface could be seen, and the whole appearance was fresh and healthy. No masses or flakes of membrane were loosened or coughed up. It all appeared to be melting away. On Thursday the temperature touched normal, the pulse was 86, the throat was nearly clear, and the nasal passages were much freer. The patient declared himself well, and his general tone was certainly excellent. He was hungry, and called for solid food. His urine was examined and found free from albumin. On Friday all the visible part of the throat was free from exudate, the tongue was slightly coated, but moist at the edges, the breath was entirely free from odor, the temperature ranged from 97.6° to 99°.

The report on the cultures, taken Thursday, was that the "Klebs-Loeffler bacilli were still present." On Saturday the child was, to all appearance, well; the throat was normal, and the nasal passages clear. All evidence of the disease had disappeared; and the temperature averaged normal. He had a royal appetite. On Sunday, one week from the date of the use of the antitoxin, the child would have been declared quite well if the report on the culture had not read "bacilli still present." I kept the child in bed and quarantined for the ensuing week, and on the eleventh day sent cultures to the laboratories of both the New York and Brooklyn Boards of Health to secure comparative tests. Reports from both read, "bacilli present." Persistent nutrition was kept up, and the throat sprayed with Seiler's solution and mercuric chlorid alternately.

Cultures made on the seventeenth day showed bacilli still present, but I had been unable to detect the slightest evidence of the disease since Saturday, October 13th, six days after the use of the antitoxin. Unfavorable reports from the Board of Health continued until the twenty-first day, when the cultures were declared free of bacilli. An intercurrent attack of follicular tonsillitis, however, again showed them present until the twenty-ninth day, when they had permanently disappeared.

No albumin was found during the course of the disease save on the eighth day, and then only a trace.

This case has been of great value as showing: first, the wonderful abortive power of the new remedy in dealing with this treacherous disease; and, second, as demonstrating its ability to limit the absorption of the diphtheric poison and so prevent the sequelæ so often seen and so fatal in a certain proportion of those recovering from the acute or primary stage of the disease. I refer especially to the cardiac and renal complications.

The presence of the true diphtheric bacilli for twenty-nine days in cultures made from the throat, three weeks after all distinctive symptoms had disappeared, and the child was apparently well, is very suggestive.

It certainly emphasizes the wisdom of making cultures and the need of quarantining patients as long as an unfavorable report comes back from the Board of Health. Doubtless this is one explanation of the spread of this direful disease in our great cities, where the children herd together in our ward schools and infect each other during the period of convalescence, when, if cultures had been made, they would still be in quarantine and the mischief prevented.

AN INTRA-CRANIAL TUMOR.

BY LAWRENCE W. LITTIG, A.M., M.D., M.R.C.S.,
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THE following case seems of sufficient interest to report, not because its presents anything unusual, but rather because it approaches the type. The patient, a little girl of seven years, with no family taint, came under professional observation in September, 1890. She had suffered from the usual diseases of infancy, and, in addition, had had a "swelling and breaking out" in the right submaxillary region, of which a small scar remains. In March, 1888, while attending the district school, she began to have attacks of vomiting, and to suffer from occasional attacks of severe headache. The neighbors noticed that she had a peculiar gait, and that she seemed inclined to reel toward one side.

Her mother states that she does not vomit like other children who are "sick at the stomach." During the past two months she has vomited on an average twice daily, and the headache after these spells of vomiting is

severe, the child throwing back her head and screaming with pain. In February, 1889, I saw the patient as she was walking through a long hall. She would reel toward the left, and recover herself, to again reel toward the left. At that time, when seated in a chair, she held her head backward, turned toward the left and slightly inclined toward the right. When gazing into vacancy both eyes were turned toward the right. Motion of the eyeballs was perfect in all directions. The pupils responded to light and in accommodation. The patellar reflex was present.

On September 20, 1890, the patient had not walked for six months. She continued well nourished. Seated in bed she rested her head against a support behind; she was mentally sluggish; a naturally bright face seemed to be clouded by a mask of stupidity. Motion of the eyeballs was not impaired, the pupils reacted to light and in accommodation; choked disc was present in both eyes. The girl counted fingers at fifteen inches with the right eye, at ten feet with the left eye. The circumference of the head was 22½ inches, and there was decided paresis of the left side of the face; the tongue when protruded turned toward the left. The child did not hear a watch on contact with the left ear, but heard the same at six feet with the right ear.

Both upper extremities were paretic, the left the more so, and ataxia existed in both. When placed on her feet the patient reeled or staggered, and would have fallen if not supported. Sensation to pain over the entire body was impaired, and conduction was slow. The patellar reflex was present. The sphincters of the bowel and of the bladder were both capable. As the patient lived ten miles in the country she was not seen again until April 29, 1891. The circumference of the head was 23¼ in.; the right pupil was dilated, and did not react to light; the left reacted slightly. The eyeballs were protruding; the forehead prominent. The girl protruded the tongue slowly. She passed urine involuntarily twice every twenty-four hours, and had no evacuation of the bowel without the use of a syringe.

At the autopsy, one week later, the circumference of the head was 23½ inches. The coronal suture was open; the skull was parchment-like in thickness, and the calvarium was removed in part with the saw and in part with scissors. In many places the convolutions of the brain were flattened, and the ventricles much dilated. The cerebellum was much increased in size, and contained a tumor located slightly to the left of the median line. The transverse and antero-posterior diameters each equaled 1¾ inches and the vertical diameter 1½ inches.

The tumor developed from the pia mater of the posterior fossa, and in its development it simply pushed the cerebellar substance before it, so that the cerebellum could be as easily lifted from the tumor as the operculum from the island of Reil. The inferior worm, the middle peduncle, the pons, and the medulla were most disturbed in function by the growth. The location and size of the tumor readily explain all the symptoms. Microscopic examination revealed a small round-celled sarcoma.

Prof. Ludwig Mauthner, who was but recently elected to the chair of ophthalmology in the University of Vienna, died suddenly on October 20.

MEDICAL PROGRESS.

Successful Operation for Suppurating Congenital Cyst of the Neck in an Infant.—Crivelli (*Australian Medical Journal*, 1894, vol. xvi, No. 8, p. 367,) has reported the case of a boy, four months old, who presented a large, soft, and fluctuating tumor occupying the posterior triangle of the neck. The tumor began to increase in size a few days after birth and rapidly assumed such proportions that to avert threatened suffocation, eight ounces of transparent and slightly yellow fluid were withdrawn by aspiration. The tumor refilled rapidly, and was aspirated a second time with strict antiseptic precautions. A third aspiration, however, was followed by suppuration of the cyst. When the child came under observation he appeared to be in a dying condition. The face was emaciated, the eyes sunken, the skin pale and wax-like, the body and limbs wasted, the pulse rapid and scarcely perceptible, the skin covered with cold perspiration, and the breathing rapid. The child also had rigors, was unable to take nourishment or to sleep, and presented a typical picture of septic infection. The tumor was quite subcutaneous and occupied the left posterior triangle of the neck, being bounded in front by the sterno-mastoid, which it overlapped and pushed to one side, and below by the clavicle and the first rib. It was almost as large as the child's head. It was not transparent, nor did it present pulsation, and no murmur could be detected. The overlying skin was red and painful and very thin at the apex, while the base of the tumor was surrounded by a margin of thick, edematous tissue. Extirpation of the tumor was decided upon as urgent, to be attempted as a last resource, in spite of the grave apprehension that was felt on account of the prolonged administration of an anesthetic to a child so young and so enfeebled. Ether was used to induce anesthesia, and the usual aseptic precautions were taken. A vertical incision, about three inches in length, was made downward in the skin over the apex of the tumor, and some six ounces of very thick, greenish pus escaped, which had no odor, but contained shreds of necrosed fibrous tissue. The cyst was unilocular, but exhibited traces of incomplete subdivisions. On introduction of the finger into the cavity a chain of enlarged glands was felt behind the sterno-mastoid, the most central of which was about the size of a walnut. The cavity was thoroughly emptied and washed out. A strip of skin was removed on each side of and parallel to the original incision, so as to facilitate the extirpation of the cyst. The cyst was universally adherent and its removal required most careful dissection to avoid injury to nerves and vessels. It extended upward almost to the side of the pharynx and to the greater cornu of the hyoid bone and a prolongation extended under the sterno-mastoid and was adherent to the glands and the sheath of the carotid vessels. This prolongation was so bound by adhesions and penetrated so deeply that its complete removal was not possible. The operation having occupied a considerable time, and as some uneasiness was felt on account of the weakness of the patient, the walls of the remainder of the cyst were now rapidly scraped with a sharp spoon and a drainage-tube passed to the bottom of the cyst. The wound was then quickly sutured and a strong solution of lysol injected through the tube, then dusted with

aristol and dressed with gauze and antiseptic wadding. The child was extremely weak after the operation, and rallied only after considerable stimulation. On the following day, however, the improvement was most marked. The dressing was changed for the first time on the second day, when the wound looked well and presented no pus. Two days later a small quantity of thick pus and some shreds of necrosed tissue escaped from the drainage-tube, around which the skin was somewhat reddened. Three days after this the drainage-tube and sutures were removed. Union had taken place except at the lowest part of the wound, from which a considerable quantity of pus was escaping. Eleven days after the operation some redness and swelling, with heat and tenderness, were observed an inch in front of the line of sutures at the level of the prolongation of the cyst and in the neighborhood of the carotid glands, which it had been impossible to completely remove. The skin here was hot and tender. A second incision gave exit to a small quantity of pus and a large piece of necrosed tissue of spongy consistence. A small drainage-tube was introduced into this new opening and the cavity was washed out at each dressing with a 5 per cent. solution of lysol. After this the amount of pus progressively diminished. The general condition of the infant greatly improved. He took the breast well, grew fatter, and slept well. Sweating ceased and the temperature fell to normal. The opening at the base of the line of stitches completely closed. Both of the drainage-tubes were gradually removed. Less than six weeks after the operation the child was completely cured, and in the course of the next few months he grew to be a large, strong, healthy baby, almost double his previous weight.

The Relationship Between Bovine and Human Tuberculosis.—SHERMAN and LAMKIN (*Medical Record*, No. 1247. p. 412) report the case of a boy, four years old, whose maternal grandfather had died of pulmonary tuberculosis, and whose nurse had about a year previously attended a daughter who also had died of pulmonary tuberculosis. The child had slight adenoid vegetations in the vault of the pharynx, and had suffered from two attacks of pneumonia, from both of which he had recovered entirely. When the boy came under observation he presented a spastic gait, frequently stumbling. Classic symptoms of meningitis, believed to be of tuberculous origin, progressively developed, and led to a fatal termination. Inoculation with tuberculin of three cows, from which was derived the mixed milk used by the patient, induced febrile reaction in two, and post-mortem examination in these demonstrated the existence of tuberculosis.

THERAPEUTIC NOTES.

The Effect of Creosote upon the Virulence of the Tubercle-Bacillus.—At the recent meeting of the British Medical Association, FYFFE (*British Medical Journal*, 1894, No. 1760, p. 644) read a paper detailing the results of an investigation undertaken with a view to determine whether the administration of creosote in the treatment of pulmonary tuberculosis is attended by a restraining influence upon the growth of the tubercle-bacillus, or by an improvement in the digestion, together with a better assimilation of food. The conclusions arrived at are summed up as follows: In cases in which creosote was given simply by inhalation, in addition to such drugs as cod-liver oil and the hypophosphites, no effect upon the virulence of the disease was noted. In cases in which the drug was administered by the mouth in doses ranging from 2 to 12 minims, three times a day, the diminution of the virulence was slight when the smaller doses were given, but when the larger amounts were reached there was an extremely marked diminution in virulence. In the case of guinea-pigs that received injections of tuberculous sputum into the legs, and were subsequently placed in a chamber in which creosote was heated until the air was saturated with the vapor, it appeared that the animal lived longer than untreated ones. Creosote injected under the skin of tuberculous guinea-pigs had a markedly restraining effect upon the morbid process, provided the disease were not too far advanced.

The Treatment of Cystitis in Children.—ESCHERICH (*Sem. méd.*, Aout, 1894; *Revue Internat. de Méd. et de Clin. Prat.*, No. 18, p. 322), in the treatment of cystitis in children with alkaline urine, practises lavage of the bladder twice daily with a warm 1 or 2 per cent. solution of boric acid, or a 5 per cent. solution of thymol. Besides he employs the following formula:

℞.—Potassium chlorate . . . gr. vi-ix.
Simple syrup . . . . . f ʒss.
Water . . . . . f ʒj.—M.

S.—A dessertspoonful every two hours.

In addition he makes an infusion of the leaves of uva ursi (half an ounce), in boiling water (five ounces), and adds simple syrup (two drams and a half). Of this also a dessertspoonful is to be taken every two hours.

In cases in which the urine is acid good results will be obtained by lavage of the bladder with weak solutions of creolin (from ten to fifteen drops in boiled water, eight ounces), and the internal administration of salol in small doses.

For the Relief of Pruritus Vulvæ.—A strong solution of methylene-blue is recommended by MADDEN (*Provincial Medical Journal*, No. 153) as an analgesic lotion in the treatment of pruritus of the vulval area. An essential point in the local treatment of this condition is to secure asepsis of the parts by frequent ablutions with hot water (120° F.) and the use of some antiseptic detergent, followed on each occasion by the application of mercuric chlorid (1:1000) or other antiseptic wash. Thus prepared, the parts are ready for the application of the antipruritic lotion, which, in conjunction with the internal use of the same agent, in two-grain pills, two or three times a day, is said to bring about marked relief. The persistent local coloration produced by the application of methylene-blue is an objection to its employment.

For Pityriasis Capitis.—

℞.—Sulphuris præcipitati . . . . ʒjss.
Adipis lanæ hydrosi . . . ad ℥ij.
Misce et fiat unguentum.

S.—To be applied to the affected parts every second day. *The Practitioner.*

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A SUGGESTION TO STATE UNIVERSITIES.

IN our State universities there is a growing tendency to come into closer touch with the people. This is shown by the summer schools, by the relations that exist between teachers' associations and the faculty, by the extension-work both in voluntary centers and country agricultural societies, and by the organization under the wing of the university of museums and laboratories, formerly independent. No attempt has been made, so far as we know, to place under university management the charitable and reformatory functions of the State. It is not to be doubted, however, by any one with sufficient knowledge of existing conditions, that it would be productive of good to place under the care of the State university the institutions for the blind, for the deaf, for the feeble-minded, and the normal schools. It would be a matter of congratulation to see these institutions conducted on that broad and educational basis which we see manifested in our more progressive State universities, instead of on the narrow, provincial, and often mercenary basis which now prevails in many of them.

There are some who believe that our penitentiaries and hospitals for the insane, our jails and poorhouses, ought to be open to the students of our State universities and furnish them laboratories for the study of crime, poverty, and mental infirmity. These advocates affirm that when medical students have been freely admitted to hospital-wards for the purposes of clinical instruction, the beds have been cleaner, the food better, the death-rate lower, and the average stay of patients in the hospital shorter on that account. They affirm, moreover, that the corruption, favoritism, and neglect previously prevailing, have been regularly diminished by the unbribable supervision of students, and that a superior administration and a superior medical and surgical treatment have been at once obtained. As an example near at home, the history of the Charity Hospital in New Orleans is often cited. It is believed that the presence of students at law, of sociology,and of medicine, in the charitable and reformatory institutions of the State would have a corresponding beneficial influence, and in proof is cited the great work of the Massachusetts State Board of Health, which comes very largely through its close connection with the Boston Institute of Technology, and the supervision which it exerts over the water-supply and sewerage of cities and towns in that State. Attention is called to the function of the University of the State of New York, which now practically includes every pupil in all the public and private schools of the Empire State, and many more students in other States and in almost every part of the world. Some citizens would, however, be slow to place at once as integral parts of the university such diverse bodies as the institutions for defectives and criminals, the State boards of health, of charities, of education, of factory-inspection, and the commision of labor, of live-stock and of fish.

There are many medical men who are asking themselves why such universities as those of Illinois, Wisconsin, Nebraska, and Kansas do not do something for medicine. When we look into the courses of study in these institutions we see that they require for the bachelor's degree something like forty or fifty units of work. Of these at least ten or twelve are identical with or accessory to the course that every graduate in medicine should take. Some of them are identical in name though superior in educational quality to courses required in the better class of medical schools. In looking over an ideal curriculum of a four-year course in medicine amounting to forty-eight units, we find that at least

thirty of these units could be given by the present faculty of the University of Illinois, or of the University of Nebraska. These institutions are situated in cities too small to furnish adequate clinical facilities for a medical school. They have no appropriations for medicine, and with a divided medical profession appropriations are hard to get. These institutions could, nevertheless, offer without extra expense a larger part of the medical course with the facilities they have at hand, and allow election to their students in this direction during the last two years of the course leading to the bachelor's degree. They could give this degree on the completion of the required amount of work, that is, forty or fifty units, and there would still remain something over two years of work before the degree of doctor of medicine would be given. The university could lay out a course of study comprising about forty-eight units of work, upon the completion of which it would confer upon students the degree of doctor of medicine. Some or all of the first half of this course would be parallel to or identical with work which might be elected in the last two years of the course for the bachelor's degree. When the student had exhausted the facilities of the State university, and had received his bachelor's degree, he would be allowed to attend any reputable medical school for the remainder of the course, returning to the university once a year with evidence of work done, to pass examinations before the faculty of the university, and receive his credits. When all the required work had been accomplished by the student, and when he had received credit by examination, he would receive the degree of doctor of medicine from the university.

Thus the student would be encouraged to complete his literary work in the university and receive his literary degree, and then, in the course of two or three years at most, would be able to do non-resident work in the best medical schools of the country, and receive his degree of doctor of medicine from the State university. He would thus be classed with educated men. When we remember that the medical departments of the University of Michigan and of Harvard University, and the College of Physicians and Surgeons of New York, still require no more for admission than is required to enter the freshman class in the respective universities to which these schools belong, we can recognize the desirability of establishing schools in which the medical degree will have greater value. Such a supervision of medical schools as this plan would entail would have a salutary effect upon the medical colleges which these universities would recommend, and would especially increase the quality of the education in them.

REGISTRATION OF TUBERCULOUS PATIENTS.

THE Board of Health of the city of New York has recommended that "physicians and other persons to whom the knowledge of the existence of a case of tuberculosis may come be requested to report to this department all such cases within seven days of the time when such sick person comes within observation; that the medical sanitary inspectors, as a part of their duty, investigate cases of the disease reported, and take specimens of the sputa for diagnostic purposes, as is done in cases of diphtheria. These specimens should be transmitted to the division of bacteriology for examination, and upon verification of the diagnosis the inspector should visit the physician reporting each case and request him to fully instruct his patient and the persons with whom he is brought in contact concerning the nature of the disease and the danger of its transmission."

Registration, however, is not, as yet, compulsory in New York, and while many support the recommendations, as made by DR. CYRUS EDSON, the Commissioner of the Board of Health, many of the older and more prominent physicians of that city look upon such an innovation with distrust. DR. EDSON reports an encouraging advance, nevertheless, in gaining the goodwill and confidence of the medical profession toward the measures which he and many others believe to be for the public good. The maintenance of a bacteriologic laboratory by the city has been of great assistance to physicians on the one hand in verifying to a certainty, in doubtful cases, or on the other hand in eliminating the diagnosis of suspected tuberculous disease. Not only are the reports of cases carefully guarded by the Board of Health in a confidential manner, but the relations of the inspectors of the Board to individual physicians who report cases are governed by strict professional courtesy, and no bad results are said to come from the report of a case of tuberculosis.

The services of the New York bacteriologic laboratory can be had by any physician who, on reporting a case of pulmonary tuberculosis, forwards with his

report a small amount of sputum from the suspected case. Physicians are informed, through the agency of the medical press and circulars of information from the Board of Health, of the depots at which they can obtain, free of expense, "culture-tubes," in which the suspected matter is placed, and which have to be returned to the depots properly labelled. The collectors make the rounds of the depots daily, collecting the tubes charged during the preceding twenty-four hours, and which have been returned to the depots for collection. The charged tubes are taken to the bacteriologic laboratory, and are examined for the tubercle-bacillus, and a report is forwarded to the physician in charge of the case, informing him of the facts.

As soon as a case is diagnosticated as tuberculous an inspector visits the house and leaves circulars of information, which are concise and which direct the patient and those in contact with him how to avoid the danger of transmitting or acquiring the disease. On the death of a case the premises are disinfected, and are not permitted to be used by any new family, should the family remove, until the rooms have been thoroughly renovated by scrubbing, painting, or kalsomining. This is obligatory on the owner or lessee of the premises, and is enforced through the order of the Board of Health.

It is well known that tuberculous patients are not panicky; they are almost always hopeful and willing to co-operate by trying to carry out reasonable means for the protection of others; but to prevent antagonism too much should not be attempted at first, or the entire system will be likely to miscarry.

The motto of every Board of Health should be: *Innocenter*, *Patienter*, *Constanter*. People, the physician, no less than the laity, must be educated. More societies for the prevention of tuberculosis should be organized, and the great truths as to the nature and prevention of the disease should be judiciously and widely disseminated. We want a medical propaganda with earnest, active members, but yet as wise as serpents and as harmless as doves. No foolish antagonism and sweeping laws should be permitted. Let the system be advisory at first, and later on, if medical sentiment and public sentiment approve, put it upon the statute-book. Organize and maintain special hospitals and cottage-sanitaria for tuberculosis. Find out the localities where medical measures will receive the greatest aid from natural resources of air and sunlight. Make it easy, if we can, to take these afflicted beings out of cities to brighter skies and evergreen forests, where Nature and art, hand-in-hand, may work together for their good, and, it may be, for their final cure.

EDITORIAL COMMENTS.

The External Use of Guaiacol as an Antipyretic.—Excessive zeal and indiscriminate employment too often result in obscuring or aborting the usefulness of newly advocated therapeutic measures. This has been the history of antipyrin and other coal-tar products of recent origin; and it will be conceded that tuberculin has at least great diagnostic if not some therapeutic utility. Although mercury intelligently employed acts with almost specific effect in the treatment of syphilis, its misdirected use may result in fatal intoxication. Again, it will not be denied that when indicated, bleeding subserves a purpose not to be fulfilled by any other therapeutic measure, but its indiscriminate application cannot be too severely condemned as baneful. While quinin has cured innumerable cases of malaria, there can be little doubt that some cases of hematuria, and perhaps some deaths, are attributable to cinchonism. Drugs must thus be looked upon as two-edged swords, equally capable of evil as well as good. Thus the recent reports of the results obtained from the topical employment of guaiacol in the reduction of the temperature of pulmonary tuberculosis have oscillated between extremes, the one showing desirable the other undesirable effects. An intelligent conclusion in such a doubtful matter is only to be arrived at by the long-continued and patient observations of careful investigators, of keen discernment and conservative judgment. Probably the first record in the United States of the endermatic employment of guaiacol in the reduction of the high temperature of pulmonary tuberculous was made by J. Solis-Cohen (see The News, Sept. 30, 1893, p. 380). Other reports of an allied nature were made in The News by Da Costa (Jan. 29, 1894, p. 85), and by Thayer (March 31, 1894, p. 343). Cohen (*Fort Wayne Medical Journal*, vol. ii, No. 11, p. 348) has continued his observations, and is now able to report a series of thirty cases of tuberculosis in which the theraputic measure here considered was employed with satisfactory results. The applications were only made when the temperature rose above 102°.

The skin is first washed with soap and water at the seat of application and then dried thoroughly. From 10 to 25 minims or more of guaiacol are poured into a vessel and brushed upon the skin with a camel's-hair pencil, which is to be rubbed upon the parts again and again until the whole dose has been absorbed. This procedure will occupy ten or fifteen minutes, and sometimes more. The part treated can be rubbed dry with the hand. It is covered with a layer of cotton and paraffin paper or oiled silk. In many cases the temperature will drop a degree or two before the rubbing has been completed, and a drop of 2° is quite frequent within thirty minutes of commencing the application. Free perspiration is a good indication of the satisfactory effect of the remedy, and should be encouraged by the use of a hot drink, preferably milk, and the application of a hot-water bag. Should the decline of temperature be too great a little artificial heat will prove grateful.

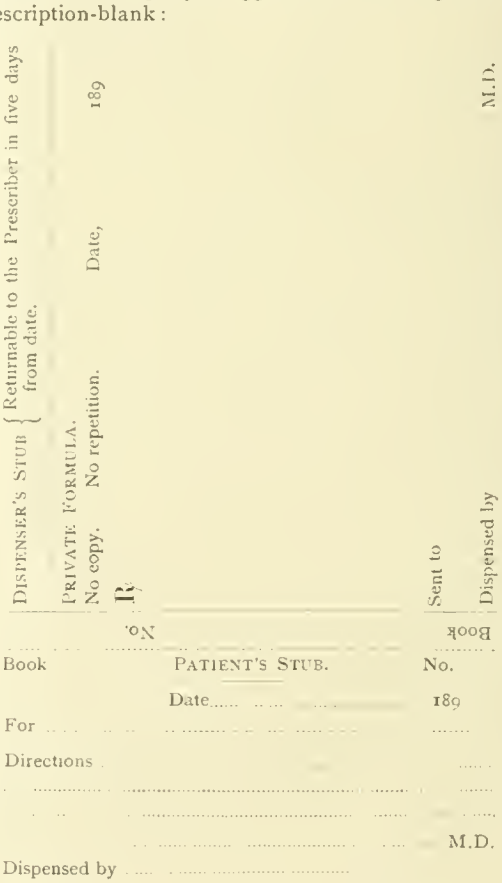
Indirect Injury to Health from Foot-ball.—A physician whose deserved fame is known of all medical men, and whose credibility is beyond suspicion, informs us that a number of foot-ball players on one of our college-teams were brought to him suffering from very decided gastric disturbances. The young men were always healthy until these symptoms developed, and they only developed after the players went under training. It seems that they were kept upon a most rigid diet, which was evidently regulated in violation of all principles of ordinary hygiene, by a trainer who did not even consult a physician or a physiologist, in spite of the fact that in the faculty of the college to which this crowd belongs he could have had the best of advice. The chief constituents of the diet appear to have been very thoroughly cooked beefsteak, eggs, and as a fluid, cold tea; water was rigidly excluded, in spite of the fact that these boys necessarily perspired very freely. As a natural result, after about six weeks the entire crowd was completely upset in its digestion, and although this appeared to be a matter of complete indifference to the trainer, the fact that these boys could no longer play with any degree of spirit or with any strength and persistence awakened him at last to the idea that something was wrong. The most interesting fact in this history was that each of these men maintained that the change in weight during a game of foot-ball was very marked. One man, who weighed 200 pounds, lost eight pounds of weight in about two hours, during the last game; a second man, who weighed 165 pounds, lost five pounds during the last game; a third, who weighed 160 pounds, and was the best of the three in point of digestion, lost three pounds during the last game. These men are accurately weighed before and after playing; they have no object or desire in misrepresenting, and their statement has been amply confirmed by outside sources.

"Now, it seems to me that any sport which involves expenditure of vital energy sufficient to compensate in two or three days for a loss of from three to eight pounds weight in two hours is injurious. It must call for an activity in the chemistry of the body which puts that body upon an awful strain. I do not wonder that these three young men are suffering, not only in their digestive system, but also in their nervous system; and it seems to me that such a method of training and of exercise is destined to permanently impair their health."

Such a statement by an intelligent and impartial observer and an advocate of the college spirit is certainly beyond comment, and is deserving of respectful consideration of even the ardent supporters of foot-ball.

The Influence of Massage upon the Body-Metabolism.—Intelligent massage has a potency not yet fully and generally appreciated or understood. The observations of Dr. J. K. Mitchell, recently recorded (see THE MEDICAL NEWS, December 23, 1893, p. 715; and the *American Journal of the Medical Sciences*, May, 1894, p. 502), show beautifully the marked changes that may be brought about in the globular richness of the blood by well-directed manipulation. One would *à priori* be led to believe that such a form of exercise would be attended with metabolic changes, the evidences of which are to be looked for in the excreta. This deduction is confirmed by the results of an investigation by BENDIX (*Zeitschr. für klin. Med.*, Bd. xxv, Heft 3 u. 4; *Centralbl. f. innere Medicin*, 1894, No. 40, p. 944), who has found that general massage of healthy individuals constantly induces an increase in the daily amount of urine and of the excretion of nitrogenous matter in the urine. The increase occurs on the first or second day of the manipulations, rising slightly on the following days, finally reaching a level that is preserved throughout the period of observation. Upon cessation of the manipulations the curve does not fall suddenly, but in the course of from two to five days. When the manipulations are intermitted for a considerable time, one or two days usually elapse after its renewal before its effects are again observable. It is believed that as a result of the massage more water is sent to the kidneys through the blood, and that urinary secretion is still further stimulated by substances expressed from the muscles. The increased elimination of nitrogenous matters is ascribed to the acceleration of the circulation. It was also found that the manipulations were attended with a diminished presence of fat in the intestinal evacuations, together with an increased elimination of nitrogenous matters.

A Non-repeating Prescription-blank.—With a view to prevent the unauthorized and indiscriminate renewal of prescriptions, G. R. Shimmel in the *Bulletin of Pharmacy*, vol. viii, No. 10, p. 457, suggests the following form of prescription-blank:



Prescription and stub are sent to the pharmacist, who affixes the stub to the bottle or box and after five days returns the prescription to the writer. The druggist is

of course at liberty to make copies of such prescriptions as he may select for self-protection or other legitimate purposes, but all applications for renewal or copy on the part of patients are to be referred to the physician. The proposition seems reasonable and practicable, and its general adoption would do much to encourage and strengthen the cordial and confidential relations that should exist between doctor and druggist.

Atrocious Villainy.—The appalling corruption and degradation of the New York City government has seemed to reach its lowest depth during each day of the entire investigation of the Lexow Committee. But it is now impossible to imagine anything worse than was revealed last week, when it was shown that there has been a systematized official plundering and protection of criminal abortionists. Such a thing has never entered into the thought of the most pessimistic vilifier of human nature. That men whose duty it has been to protect society from the most depraved of human beings and callings should deliberately organize themselves to protect the villains, and by protecting extort from them unknown amounts of money (one man paying $2825 within six weeks)—all this surpasses belief, and makes us shudder to think of the modern degradation of human beings. The wise physician finds something better to do than to "meddle with politics;" but when "politics" means the debauching of his profession and the brutal traffic in human health and human beings, then it is time for him to make his influence felt. It was stated that in New York there are two-hundred of these professional abortionists. We trust not so many, but it is only too true that in every large city criminal abortion is carried on to much larger extent than any one individual can know; and when we hear nothing about it, when all goes on smoothly and silently, when no cases are brought to view and to trial, then and there, probably, is the fiendish trade most rampant.

A Biologic Laboratory for the Philadelphia Board of Health.—At a recent meeting of the Philadelphia Board of Health the Sanitary Committee presented a report recommending the establishment of a Biologic Laboratory and the engagement of a competent bacteriologist and such assistants as may be required for the purpose of conducting investigations of contagious diseases, and facilitating diagnosis, of investigating water-supplies and food-supplies, and of indicating and, as far as possible, providing the appropriate remedial measures. The board already possesses a complete outfit for general bacteriologic investigation, and the Building Commission has placed a sufficient amount of room at the disposal of the board. City Councils are now asked to make an appropriation of $15,000 for the purposes of organizing a Division of Bacteriology and Disinfection, engaging the necessary experts, purchasing additional apparatus, and for incidental expenses. The project should receive universal endorsement, and as little time as possible should be lost in putting it into execution. The work of the Division of Pathology and Bacteriology of the New York Board of Health affords convincing evidence of the sanitary good that can be effected by rigorous and intelligent application of the principles deducible from existing knowledge of the causes and prevention of disease. Philadelphia should not be a tardy second in emulating the good example set by the great metropolis.

The Temperance Reform League of Massachusetts and the Keeley Cure.—Dr. B. D. Evans, the Medical Director of the New Jersey State Hospital for the Insane, has been admitted to membership in the Temperence Reform League of Massachusetts. This ends a battle between Dr. Evans and the Keeley cure, as far as Massachutetts can decide it, with victory in favor of the former. Dr. Evans, it will be remembered, gathered statistics from insane asylums over the United States and among the one-thousand insane patients in the hospital of which he has charge, compiling valuable and detailed "tables of cases of relapse, suicide, mania, and dementia subsequent to the graduation at the Keeley Institute." His article, which was published in The Medical News of May 6, 1893, was reprinted in Boston papers, and his report was laid before the Temperance Reform League. It was bitterly denounced by the "Keeley Cure," which applied to the Temperance Reform League for an examination, for this organization by its charter from the State is a quasi-court, whose functions are those of a judge who examines conflicting medical evidence in a suit for malpractice and announces the result. The end of the trial has been reached, and Dr. Evans is honorably welcomed into the society, and thanked for his services in exposing pseudo-reform, while the Keeley offices in Boston have been abandoned.

The Optician's Impudence.—We wish to call the attention of those ophthalmalogists who have contended that the treatment of refractive errors is a matter of non-mydriatic mechanics and optics to the use that the optician is making of their absurd contention. Supported by the authority of such physicians the commercial optician is demanding and convincing the public of this dangerous error. He is reproducing their words in flaming advertisements, gathering and reporting his cases just as a physician does, and talks glibly of reflex diseases of the eyes cured by his great skill, and of ophthalmometers, phorometers, etc., and of the absurdity of the use of belladonna. He cures all cases of squint, of muscular as well as refractive errors, by his wonderful glasses. In the same circular he promises "strict co-operation" with the general physician, and appeals to him to send patients to the great optician, and thus utterly abolish the ophthalmalogic physician. It is a fine scheme, but it has already failed more than once, and especially must it fail when the optician-long-ears quotes the neurologist *ad nauseam* that "*the oculist fails if he is only an oculist,*" leaving the stupidest suggested query unanswered, "But if he be only an optician must he not more certainly fail?"

Bacteriology of Baked Bread.—In a recent issue of *The Lancet*, Messrs. Waldo and Walsh give the results of an investigation to determine to what extent baking destroys the vitality of the microbes of dough. They succeeded in cultivating thirteen different species from a portion taken out of the center of recently baked loaves. These facts may seem at first to be of little value, but it is shown that bread may be an active distributer of con-

tagion. Dr. Waldo, who is medical officer of one of the London districts, gives a startling account of the filthy and insanitary condition of some of the bakeries. Many are located in cellars. These insanitary conditions affect both the producers and consumers. It is stated that journeymen bakers as a class are shortlived. It has been generally supposed that even if dough should become infected, it will be rendered sterile by the baking, but this is now shown to be erroneous. The fact is that bread-manufacture should be conducted entirely on a large scale by the aid of machinery, so that the materials shall not be touched by human hands throughout the process. This is now perfectly feasible. The subject of the conveyance of infection by food other than by milk merits further study.

Honor to Whom Due.—It was a generous impulse that prompted Prof. Roux, of Paris, when complimented and praised for his labors in connection with the preparation of the antitoxin of diphtheria, and its successful clinical employment, to modestly disclaim the credit for the discovery of this promising and powerful therapeutic agent, and to yield priority to his German confrères, and more particularly to Prof. Behring, of Berlin, whose method Roux frankly admitted he had followed. How much more admirable this than the unseemly contests for "priority" with which the world has from time to time been edified in connection with so-called discoveries in medicine. Great as is the credit and the honor that must be conceded to Koch's pupils for their great work in the domain of biologic therapeutics, a full share belongs also to their French colleagues, the pupils of Pasteur, and a special obligation is owing to Prof. Roux for his frankness and truthfulness, especially on an occasion on which the reverse was more than tempting.

Edible Mushrooms.—The last annual report of the Division of Microscopy, U. S. Department of Agriculture, gives some finely executed plates of edible mushrooms. Five species are figured. The food-value of mushrooms has been rather overrated; although containing much nitrogen, they are not easily digestible. In view of the poisonous action of many species, it is an advantage to have correct and vivid representations of the safe forms.

REVIEWS.

Laboratory Manual of Elementary Chemical Physiology and Urine Analysis. By J. H. Long, M.D., Sc.D., Professor of Chemistry in the School of Medicine and Pharmacy of Northwestern University. Small 8vo, pp. 360, and Index. Chicago: E. H. Colegrove & Co.

This is a departure in some respects from the type of laboratory manuals. It associates physiology and chemistry more intimately than is usual in such works. It covers the work done in the second year's course in the medical school with which the author is connected. We note in the preface, with much satisfaction, that Dr. Long favors the plan of making chemistry a requirement of entrance to medical study, and thus relieving the college proper of the duty of teaching. We fear he is right in saying that this consummation is far in the future, but it is surely one devoutly to be wished. It will be a happy day for medical colleges when they can devote themselves to giving instruction in actual medical and surgical work, and not be burdened with lectures, laboratory instruction, and quizzes on accessory sciences.

The work begins with a consideration of the methods employed in physiologic chemistry, interspersed with experiments illustrating these methods. The definition of normal solution given on p. 9 is likely to be confusing to students. The formal definition given in the first part of the paragraph should not have been inserted, since it is mentioned only to be practically set aside a few lines below. We feel also obliged to say that unless Dr. Long's pupils are more apt at mathematics than is usual in colleges of pharmacy and medicine, they will find some difficulty with the explanations in specific gravity.

A valuable feature of the book is the explanations of polarization methods. Rotary actions are so frequently mentioned in the teaching of physiology and organic chemistry that it is necessary to discuss the subject somewhat, and unless it is carefully explained students are likely to confound rotation with refraction. Fifteen pages are devoted to the theory of polarization and descriptions of polarimeters, the details being illustrated with cuts, all of which are superior to those in other parts of the book. It is interesting to reflect as to what is to become of our standard methods of explaining polarization if the opposition to the undulatory theory of light, now so vigorously led by Ostwald, should be successful.

We regard the manual as excellently adapted for medical colleges.

The Science of Vital Force. Its Plan, Division of Function, and Operative Methods in Health and Disease. An Involuntary Agency of Nature that can be Harnessed and Utilized. By W. R. Dunham, M.D., author of the *Higher Medical Culture*. 12mo, pp. 198 Boston: Damrell & Upham, 1894.

In reading this tilt against the theories and established facts of modern biologic science, one is reminded of the assurance and result with which Sir Uwaine is described as having undertaken to unhorse Sir Launcelot. "And there with al syre Uwaine gate his spere in his hand and rode toward syre Launcelot, and syre Launcelot knew him wel, and so he mette him on the playne and gafe him such a buffette that he was astonyed, that long he wyst not where he was."

In the present encounter the would-be scientific knight evidently "wyst not where he was" before he began, and when the gentle critic turns down the last page he is again reminded of an amusing incident charmingly recorded in Christopher North's *Noctes Ambrosianæ* (xxv). On the occasion referred to, the Ettrick Shepherd got "rattled" during a discussion upon commerce and credit with Christopher North, Mr. Tickler and the English opium-eater, and in the following wise:

Mr. De Quincey had secretly fed a box of opium-pills, by way of experiment, to a young Newfoundland dog that North had just introduced to their notice. The dog got crazed with the opium and cut up a number of

pranks in the which a swarm of bees got loose and stung the opium-eater, Mr. Tickler and the Shepherd; the latter two quite badly, for their swollen faces required leeches and lotions. After the basins and towels and such like had been removed the following colloquy ensued:

Shepherd: "Hoo's my face noo?"

North: "Quite captivating, James. That dim discoloration sets off the brilliancy of your eyes to great advantage, and I am not sure if the bridge of your nose as it now stands is not an improvement."

Shepherd: "Weel, weel, le's say nae mair aboot it."

"That's richt, Mr. Tickler, to hang your silk handkerchief ower your face, like a nun taking the veil; where were we at?"

A TREATISE ON THE PRINCIPLES AND PRACTICE OF MEDICINE. Designed for the use of Students and Practitioners of Medicine. By AUSTIN FLINT, M.D., LL.D., Late Professor of the Principles and Practice of Medicine, and of Clinical Medicine in Bellevue Hospital Medical College, N. Y. Seventh edition, thoroughly revised by FREDERICK P. HENRY, M.D., Professor of the Principles and Practice of Medicine in the Woman's Medical College of Pennsylvania, Philadelphia. Pp. 1143. Philadelphia: Lea Brothers & Co., 1894.

DR. HENRY is to be congratulated on the success with which he has accomplished the revision of Flint's classic *Practice*. The task of revising the work of another after the lapse of a period of eight years is not a light one, but in this instance it has been performed with a skill and a delicacy that command admiration and disarm criticism. Of the original work there is naught to say; this has attained a high place in American medical literature; while the additions and alterations are characterized by a care and thoroughness for which the reviser has earned a deserved reputation. The most important change in the present edition is the omission of the section on general pathology, as finding a more appropriate place in special works devoted to the subject. Many new articles (upward of twenty) have been incorporated in the text, and throughout the work may be found such annotations of the reviser as the progress of time has necessitated. The section devoted to the consideration of the functional disorders of the stomach, together with modern methods of study of the gastric functions for diagnostic purposes, has been brought up to date and constitutes a terse and clear delineation of the present aspect of this intricate and not yet finally elaborated subject. The editor states that he entered upon the task of revision with a feeling of reverence for the memory of the distinguished author of the original, and that "if he has erred, it has been in the direction of conservatism." We can only add that he has performed his task well and thereby served to insure for Flint's *Practice* a continuance of the popularity it has so long deservedly enjoyed.

ON DOUBLE CONSCIOUSNESS. By ALFRED BINET. The Religion of Science Library. The Open Court Publishing Company. Chicago: 1894.

THE author of this little book belongs to the so-called most advanced school of French psychologists. The book is very interesting, but one cannot help feeling that if the writer had more skepticism the reader would need less. It would appear, for instance, to the ordinary thinker, that an apparently anesthetic hand which wrote when a pencil was put in it was not really anesthetic; rather than that, the person holding the pencil had a second consciousness of which he was not conscious. The explanation of many curious phenomena by reflex action and automatism receives scant attention. Truly there is much paradox in advanced psychology, and much faith in the childlike innocence and truthfulness of hysterics.

A MANUAL OF HUMAN PHYSIOLOGY; PREPARED WITH SPECIAL REFERENCE TO STUDENTS OF MEDICINE. By JOSEPH H. RAYMOND, Professor of Physiology and Hygiene at the Long Island College Hospital, and Director of Physiology in the Hoagland Laboratory; with 102 illustrations in the text and 4 full-page colored plates. 8vo, pp. 382. Philadelphia: W. B. Saunders.

THE conciseness and lucidity with which the subject is handled by Prof. Raymond in his excellent little manual challenge admiration, and, if calling forth criticism at all, it is not so much with the book as with the fact that our medical schools allot so brief a time to the study of physiology, "that the students can assimilate only the main facts and principles of this branch of medicine, which lies at the very foundation of a sound knowledge of the healing art," and which therefore necessitates the use of books which give no insight into the historic development of physiologic science, or any knowledge of the methods which have served to establish the aforesaid "main facts and principles." Physiology is preëminently an experimental science, and the student cannot afford to content himself with the mere memorization of facts and principles, but must make himself familiar by laboratory-experiment and the study of thorough-going treatises dealing with the development of this fundamental department of medical science. This little volume is, however, one of the best of its kind, quite up to date, and will be found valuable to all who are so unfortunate as to be limited in time.

THE JEWISH METHOD OF SLAUGHTER COMPARED WITH OTHER METHODS, FROM THE HUMANITARIAN, HYGIENIC, AND ECONOMIC POINTS OF VIEW. By J. A. DEMBO, M.D. Translated from the German, with the author's amendments. Published by the Trustees of the late J. A. Franklin. 8vo, pp. 14. London: Kegan Paul, Trench, Trübner & Co., Lt.

THIS work grew out of an agitation against the Jewish method of slaughter, the opposition being in the main from some of the European societies for the prevention of cruelty to animals. It is probable that the anti-Semitic element in many places took up the cry, not from any sympathy with the slaughtered animals, but for the purpose of annoying Jewish fellow-citizens. Dr. Dembo goes into the question thoroughly, discussing all the methods of slaughter from anatomic and physiologic standpoints. He has also investigated the influence of the various methods on the palatability and keeping qualities of the meat. The text has a strong flavor of

controversy. It is evident that much feeling has been engendered by the dispute.

The work defends unreservedly the Jewish method as the most humane and certain, and the one producing the most wholesome meat. In a few lines given to slaughter by electricity the inference is suggested that this method for execution of criminals has failed in the United States. The translation is well done.

The Principles of Bacteriology: A Practical Manual for Students and Physicians. By A. C. Abbott, M.D., First Assistant, Laboratory of Hygiene, University of Pennsylvania, Philadelphia. New second edition. 12mo, 472 pages. Illustrated. Philadelphia: Lea Brothers & Co., 1894.

This excellent manual needs no introduction to students of bacteriology, who will welcome a new edition in which the text has been doubled and elucidated by means of many additional illustrations. The colored illustrations, of which there are seventeen, are a new feature, and like the differentiated or counterstained preparations they represent, several of them afford very pretty and instructive pictures of bacteria in tissues.

While the arrangement and purpose of the earlier edition have been maintained, the descriptive portion of the work has been extended, and a new and valuable chapter has been introduced, entitled "Infection and Immunity," in which the author defines clearly and concisely the types of infection, and gives a chronologic *résumé* of experimental research bearing upon the nature of immunity, concluding with a summary of our knowledge of these conditions at the present time.

A list of apparatus and materials necessary to equip a bacteriologic laboratory appear in an appendix, and will be helpful to the beginner.

NEWS ITEMS.

The Mississippi Valley Medical Association will hold its twentieth annual meeting in Hot Springs, Ark., November 20, 21, 22, and 23, 1894. The following program is announced:

Cases of Traumatic Cataract in Children Treated by Extraction, by James M. Ball, St. Louis; Toxics, by W. F. Barclay, Pittsburg; The Philosophy of Stimulants, by A. D. Barr, Calamine, Ark.; Squint, with Special Reference to an Operation, by Charles H. Beard, Chicago; Conservative Surgery, and What it Means at the Present Time, by A. C. Bernays, St. Louis; The Deeper Inflammations of the Skin, by A. W. Brayton, Indianapolis; Intestinal Indigestion, by A. P. Buchman, Fort Wayne, Ind.; The Medical Expert Witness, by Robert M. Campbell, Esq., Ashland, O.; Some Observations on "Sore-throat" Due to Concretions in the Tonsils, by L. C. Cline, Indianapolis; The Differential Diagnosis of Coma, by W. J. Conklin, Dayton, O.; Constipation, by George J. Cook, Indianapolis; Syphilis, and Its Relation to Other Affections, Especially those of the Skin, by William T. Corlett, Cleveland; Surgical Treatment of Uterine Fibroids; Disposal of the Pedicle, by A. H. Cordier, Kansas City, Mo.; Stab-Wound of Pericardium; Resection of Rib; Suture of Pericardium; Recovery, by H. C. Dalton, St. Louis; Surgical Treatment of Trachoma, by Davis A. Dean, Pittsburg; Possibilities of Medicine, by J. O. DeCourcy, St. Libory, Ill.; Some New Instruments and Means of Physical Diagnosis, by Charles A. Denison, Denver, Col.; subject unannounced, Arch Dixon, Henderson, Ky.; Quinin in Chorea, by Frank R. Fry, St. Louis; A Few Remarks on the Early History of Rectal Diseases, by S. G. Grant, Kansas City, Mo.; Report of a Case of Trephining for Cerebral Clot, with Loss of Vision, Recovery, by John B. Hamilton, Chicago; Diseases of the Accessory Nasal Cavities; Their Influence Upon the Organs of Sight; Modern Surgical Treatment, with Report of Cases, by C. R. Holmes, Cincinnati; Spot Specialism, by C. H. Hughes, St. Louis; The Management and Treatment of Endometritis, and the Prevention of Tubal and Ovarian Diseases, by W. H. Humiston, Cleveland; Functional Stenosis; Its Relation to Malformations, Dislocations, and Flexions; and Conditions Characterized by Amenorrhea, Dysmenorrhea, and Hyperemias; with a Scientific Rationale in Therapeutics, by George F. Hulbert, St. Louis; subject unannounced, W. S. Kerr, Mansfield, O.; subject unannounced, W. E. Kiely, Cincinnati; The Neatest Method of Circumcising, by Bransford Lewis, St. Louis; Colles' Fracture, by J. E. Link, Terre Haute, Ind.; Double Nasal Atresia, due to Smallpox, by H. W. Loeb, St. Louis; Tubercular Meningitis, by I. N. Love, St. Louis; Physicians' Prescriptions, by Starling Love, Columbus, O.; Traumatic Lesions of Cranium and Brain; Report of Clinical Cases, by Geo. N. Lowe, Randall, Kan.; Observations on Residual Urine and Remarks on Perineal Section, by G. Frank Lydston, Chicago; Modern Surgical Technique, by Henry O. Marcy, Boston; subject unannounced, Heine Marks, St. Louis; Tumors of the Neck, by Donald Mclean, Detroit: Advantages and Disadvantages of Kraske's Operations, by Joseph M. Mathews, Louisville; Resection of the Knee for Separation of the Lower Epiphysis of the Femur; Case of Two Years' Standing in a Patient Thirteen Years of Age, by A. H. Meisenbach, St. Louis; Accidents and Injuries from Electric Currents of High Potential, by Harold N. Moyer, Chicago; The Mental Symptoms of Cerebral Syphilis: A Clinical Study, by Frank P. Norbury, Jacksonville, Ill.; Enlarged Tonsils and Their Treatment, by John North, Toledo, O.; My Experience With Cold as a Therapeutic Agent, by A. M. Owen, Evansville, Ind.; The Surgical Treatment of Injuries of the Head, by Charles B. Parker, Cleveland; Headache, by Curran Pope, Louisville; Address on Surgery, by Joseph Ransohof, Cincinnati; Syphilis, by A. Ravogli, Cincinnati; Reform in the Management of the Insane and the Neurotic Viewed from a Gynecological Standpoint, by Charles A. L. Reed, Cincinnati; Retinitis Syphilitica, by Dudley S. Reynolds, Louisville; The Spine and the Elevator, by B. Merrill Ricketts, Cincinnati; Infantile Paralysis, by John Ridlon, Chicago; President's Address, X. C. Scott, Cleveland; Epilepsy, by C. E. Smith, Waco, Tex.; Climate and Tuberculosis, by S. E. Solly, Colorado Springs, Col.; Toxicity in the Production of Nervous Diseases, by Albert E. Sterne, Indianapolis; Constipation from a Surgical Standpoint, by Leon Straus, St. Louis; Laparotomy for Pelvic Diseases no Longer Necessary, by R. Stansbury Sutton, Pittsburg; Medication of the Air-Passages by a New Atomizing Vapor-

izer; With Experiments on Animals, by Homer M. Thomas, Chicago; The Importance of Urinalysis in Diagnosis, by A. B. Walker, Canton, O.; Reflex Irritation as a Cause of Nervous Diseases, by Edwin Walker, Evansville, Ind.; subject unannounced, H. O. Walker, Detroit; Hydrocele, by W. C. Weber, Cleveland; Address on Medicine, by J. T. Whittaker, Cincinnati; Tumor Albus of the Knee-Joint, by William E. Wirt, Cleveland; Influence of Inflammation of the Seminal Vesicles in Maintaining Gleet, by W. N. Wishard, Indianapolis; Modern Antiseptic and Aseptic Midwifery in Private Practice, by E. Gustave Zinke, Cincinnati.

The Southern Surgical and Gynecological Association will hold its Seventh Annual Meeting at Charleston, S. C., on November 13, 14, and 15, 1894. The following program has been arranged: Address of Welcome and Response; Memorial Address on Dr. Warren Stone, by A. B. Miles, M. D., New Orleans, La.; Operation for Complete Perineal Laceration, by Jos. Price, M.D., Philadelphia, Pa.; Gonorrhea in Women, by J. B. S. Holmes, M.D., Atlanta, Ga.; Some Cases of Intestinal Obstruction, with Deductions Therefrom, by A. M. Cartledge, M.D., Louisville, Ky.; Hernia of the Diaphragm, with Report of a Case, by Floyd W. McRae, M.D., Atlanta, Ga.; The Treatment of Sinuses Following Celiotomy, by W. H. Wathen, M.D., Louisville, Ky.; The Diagnosis and Treatment of Congenital Cystic Hygroma, by J. A. Goggans, M.D., Alexander City, Ala.; Some Complicated Cases of Abdominal Surgery, by J. G. Earnest, M.D., Atlanta, Ga.; Early Operation in Appendicitis, with a Case, by J. McF. Gaston, M.D., Atlanta, Ga.; Appendicitis, by W. B. Rogers, M.D., Memphis, Tenn.; Attention to Women Before and After Labor, by W. G. Bogart, M.D., Chattanooga, Tenn.; Plastic Operations for Carcinoma of the Breast, by J. T. Wilson, M. D., Sherman, Texas; Gunshot Wound of Spleen, Hemostasis by Deep Suture, Recovery, by L. McLane Tiffany, M.D., Baltimore, Md.; Technique of Vesical Drainage, by G. Frank Lydston, M.D., Chicago, Ill.; Successful Treatment of Case of Nevus by Electricity, with Remarks, by William Perrin Nicolson, M.D., Atlanta, Ga.; The Use of Electricity in Late Syphilis, by Lewis Wheat, M.D., Richmond, Va.; Observations on the Action of Chloroform on the Functions of the Human Brain and Spinal Cord, as Witnessed in Extensive Injuries of the Cranium and Brain, by Bedford Brown, M.D., Alexandria, Va.; Treatment of Abscess of the Liver, by J. D. S. Davis, M.D., Birmingham, Ala.; Puerperal Peritonitis, by V. O. Hardon, M.D., Atlanta, Ga.; Treatment of Peritonitis, by Richard Douglas, M.D., Nashville, Tenn.; Movable Kidney, by Geo. Ben Johnston, M.D., Richmond, Va.; History of Vaginal Extirpation of the Uterus, by Geo. J. Engelmann, M.D., St. Louis, Mo.; The Present Status of Gall-Bladder Surgery, by A. Vander Veer, M.D., Albany, N. Y.; Gynecological Surgery Away From the Large Cities and Educational Centers, by W. L. Robinson, M.D., Danville, Va.; Reminiscences of Dr. J. Marion Sims in Paris, by Edmond Souchon, M.D., New Orleans, La.; President's Address, by C. Kollock, M. D., Cheraw, S. C.; Transfusion in the Treatment of Acute Hemorrhage, by T. J. Crofford, M.D., Memphis, Tenn.; A Case of Vaginal Hysterectomy for Carcinoma of the Uterus, Three Days After Parturition, by Geo. H. Noble, M.D., Atlanta, Ga.; The Simultaneous Appearance of Cancer in the Breast and Uterus, by James Evans, M.D., Florence, S. C.; Something About the Final Condition of the Mouths in Gastro-enterostomies, with Specimens, by H. Tuholske, M.D., St. Louis, Mo.; Puzzling Point in Labor, by Geo. R. Dean, M.D., Spartanburg, S. C.; Suprapubic Cystotomy Compared with Perineal Operations, by C. H. Mastin, M.D., Mobile, Ala.; Tracheotomy for Foreign Bodies in the Air-Passages, by W. F. Westmoreland, M.D., Atlanta, Ga.; Ligation in Continuity, with Report of Case 1. Ligation of the External and Internal Carotid Arteries and Internal Jugular Vein. Case 2. Ligation of the External Carotid Artery, by Jno. A. Wyeth, M.D., New York; The Placenta: When and How Delivered, by J. B. Murfree, M.D., Murfreesboro, Tenn.; Report of Cases of Varicocele Treated by the Open Method and Shortening of the Scrotum, by W. E. Parker, M.D., New Orleans, La.; Treatment of Cystitis in the Female, by Hunter McGuire, M.D., Richmond, Va.; Hydro-pyonephrosis—Successful Removal of a 40-pound Tumor of the Kidney, by Jos. Taber Johnson, M.D., Washington, D. C.; The Value of Plastic Work in Intra-peritoneal Operations, by J. W. Long, M.D., Richmond, Va.; Fibroid Tumor of the Uterus, with Suppurating Ovary Discharging per Rectum, by Rufus B. Hall, M.D., Cincinnati, Ohio; Technique of Operations on the Pregnant Uterus, by W. D. Haggard, M.D., Nashville, Tenn.; The Relation of Uterine and Ovarian Disease to Insanity, by L. S. McMurtry, M.D., Louisville, Ky.; Surgery of the Ureters, by Howard A. Kelly, M.D., Baltimore, Md.; Ideal Operation for Varicocele, by G. Frank Lydston, M.D., Chicago, Ill.; The Value of Coccygeal and Sacral Resection in the Treatment of Congenital Occlusion of the Rectum, by Rudolph Matas, M.D., New Orleans, La.; The Surgical Treatment of Spina Bifida, with an Illustrative Case, by H. O. Marcy, M.D., Boston, Mass.; Ligation of the Uterine Arteries in the Treatment of Chronic Metritis, by W. E. B. Davis, M.D., Birmingham, Ala.

Relative Standing of the Graduates of the Various Medical Colleges examined by the South Carolina State Board of Medical Examiners, October 9 and 10, 1894.

Names of Colleges represented.	No. of applicants from each.	No. that passed the Board.	No. rejected.
Medical College of Georgia, Augusta, Ga.	1	0	1
Medical College of Virginia, Richmond, Va.	1	1	0
Medical Department Howard University, Washington, D. C.	4	2	2
University of Pennsylvania, Philadelphia	1	1	0
University of City of New York	1	1	0
Woman's College of New York Infirmary, New York	1	1	0
College of Physicians and Surgeons, Baltimore	1	0	1
Medical College of Baltimore	1	1	0
South Carolina Medical College, Charleston, S. C.	3	3	0
Total	14	10	4

Relative Standing of the Graduates of the Various Medical Colleges examined by the State Board of Medical Examiners, representing the Medical Society of the State of Pennsylvania, June 11–14, 1894.

Medical College from which applicants graduated.	No. examined.	No. failed.	Per ct. of failures	Aver. grade.
University of Pennsylvania . . .	76	1	1.32	87.76
Woman's Medical College . . .	18	2	11.11	83.44
Jefferson Medical College . . .	67	5	7.46	83.29
Medico-Chirurgical College . .	26	3	11.54	82.48
Western Pennsylvania College .	44	3	6.82	81.13
College of Phys. and Surgs. (Balt.)	3	1	33.33	80.68
Baltimore Medical College . . .	8	5	62.50	75.81
Miscellaneous Colleges	26	9	34.61	74.77
Total	268	29	10.82	82.18

Alvarenga Prize of the College of Physicians of Philadelphia.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1895, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the Secretary of the College, Dr. C. W. Dulles, on or before May 1, 1895.

Each essay must be sent without signature, but must be plainly marked with a motto, and be accompanied by a sealed envelope having on its outside the motto of the paper, and within it the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award.

A Generous Gift to the University of Pennsylvania.—Mr. and Mrs. H. H. Houston have given $100,000 to the fund for the erection of a students' hall at the University. In recognition of this gift the trustees have decided to name the hall after Howard Houston, son of the donors, who was a student in the University at the time of his death.

The Eastern Iowa District Medical Society will hold its twenty-third session at Keokuk, Iowa, November 15, 1894. All members of the medical profession are cordially invited to be present.

BOOKS AND PAMPHLETS RECEIVED.

Anomalies of Refraction and of the Muscles of the Eye. By Flavel B. Tiffany, M.D. Author's Edition. Kansas City, Mo.: Hudson-Kimberly Publishing Co., 1894.

The Eye Treatment of Epileptics. By Ambrose L. Ranney, A.M., M.D. Reprinted from the New York Medical Journal, 1894.

Ueber mucinartige Bestandteile der Neurofibrome und des Centralnervensystems. Von P. G. Unna. Sonder-Abdruck aus Monatshefte für praktische Dermatologie. 1894, Band xviii. Verlag von Leopold Voss, Hamburg u. Leipzig.

Hysterical Seizures Relieved by Hypnotic Suggestion. By Judson Daland, M.D. Reprinted from the University Medical Magazine, 1893.

The Diagnosis of Mitral Valvulitis, with a Report of Three Cases. By Judson Daland, M.D. Reprinted from the International Clinics, vol. iv, third series.

Saint Bartholomew's Hospital Reports. Edited by W. S. Church, M.D., and W. J. Walsham, F.R.C.S. Vol. XXIX. London: Smith, Elder & Co., 1893.

Three Years' Experience with the Electrical Treatment of Fibroid Tumors of the Uterus, with a Report of Forty-four Cases. By By W. L. Burrage, A.M., M.D. Reprinted from the American Journal of Obstetrics, 1894.

Breathing Exercises a Curative Measure for Consumption, with a New Theory Advanced as to the Etiology of that Disease. By Eugene L. Crutchfield, M.D. Reprinted from the Maryland Medical Journal, 1894.

Abstract of Proceedings of the Michigan State Board of Health. Regular Meeting, January 12, 1894. Lansing, 1894.

Cardiac Asthenia, or Heart-exhaustion. By J. M. Da Costa, M.D., LL.D. Reprinted from the American Journal of the Medical Sciences, 1894.

Saunders' Question Compends, No. 21. Essentials of Nervous Diseases and Insanity: Their Symptoms and Treatment. By John C. Shaw, M.D. Philadelphia: W. B. Saunders, 1894.

Saunders' Question Compends. Essentials of Anatomy. By Charles B. Nancrede, M.D. Philadelphia: W. B. Saunders, 1894.

A Retrospect of Surgery. January, 1890 to January, 1894. Prepared by Francis J. Shepherd, M.D., C.M. Montreal Printing Co., 1894.

Transactions of the New York State Medical Association for the Year 1893. Volume X. Edited for the Association by E. D. Ferguson, M.D. Published by the Association, New York City.

The Subcutaneous Use of Chlorid of Gold and Sodium with Iodid of Manganese in Pulmonary Tuberculosis. By William S. Boardman, M.D. Reprinted from the Boston Medical and Surgical Journal, 1894.

The Electrical Treatment of Fibroid Tumors. By G. Betton Massey, M.D. Reprinted from the Journal of the American Medical Association, 1894.

Electricity in the Treatment of Chronic Prostatitis and Other Conditions Underlying Impotence in Men. By G. Betton Massey, M.D. Reprinted from the University Medical Magazine, 1894.

Conservatism in Accidental Surgery. By Edmund J. A. Rogers, M.D. Pamphlet. Denver, Col., 1893.

A Contribution to the Study of the Myelin Degeneration of the Pulmonary Alveolar Epithelium. By Veranus A. Moore, M.D. Pamphlet. Washington, D. C., 1893.

U. S. Department of Agriculture, Weather Bureau. Circular of Information. Protection from Lightning. By Alexander McAdie. Washington, D. C., 1894.

Address of Welcome to the Association of Military Surgeons. By Samuel C. Busey, M.D. Delivered at Washington, May 1, 1894. Pamphlet. Washington: Gibson Bros., 1894.

Forty-fourth Annual Report of the Southern Home for Destitute Children, formerly Union School and Children's Home, corner of Broad and Morris Streets, 1894.

Treasury Department, Quarantine Laws and Regulations of the United States, April 26, 1894. Washington: Government Printing Office, 1894.

What Results May be Expected from Celiotomy in Insanity, Hystero-Epilepsy, and Kindred Neuroses. By W. P. Manton, M.D. Reprinted from the Physician and Surgeon.

A Plea for the Amelioration of Insane Women Suffering from Local Disorders. By W. P. Manton, M.D. Reprinted from the American Gynecological Journal, 1893.

A Contribution to the History of Ovariotomy in the Insane. By W. P. Manton, M.D. Reprinted from the Transactions of the American Association of Obstetricians and Gynecologists, 1889.

Sudden Emptying of the Bladder as a Cause of Cystorrhagia. By Walter P. Manton, M.D. Reprinted from the American Lancet.

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ORIGINAL ARTICLES.

A REVIEW OF SOME OF THE DISPUTED POINTS IN CONNECTION WITH DIPHTHERIA AND CONDITIONS WITH WHICH IT HAS BEEN CONFOUNDED.[1]

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A RETROSPECTIVE view of the confusion of ideas that existed upon diphtheria prior to the discovery of its etiology illustrates how essential to a correct understanding of the manifold phases of a disease is a knowledge of its cause. From the time of Bretonneau to the date of the observations of Klebs and of Loeffler much valuable information was accumulated, but in the state of knowledge in existence at the time it could hardly be estimated at its true value.

It may be of profit to pass in review some of the more important features of the disease, and endeavor to learn in how far opinions expressed by the early observers have been supported or refuted by the results of later methods of investigation.

The first observations that attracted attention to the disease, diphtheria, as we know it, were made in 1826, by Bretonneau, of Tours, who endeavored to extricate from the chaotic mass of ideas existing at the time some definite conception of a malady that had hitherto been loosely classed with a group of gangrenous and necrotic conditions with which it had but little in common, either clinically, anatomically or etiologically. He suggested the use of the term "diphtheritis" for the disease, which was characterized by the presence of a skin-like pellicle upon the mucous membrane of the throat, for the reason that he considered this the feature by which it was distinguishable from all others with which it might be confounded. It may be mentioned at this point that in 1771, Samuel Bard, of New York, in a monograph entitled *An Inquiry into the Nature, Cause and Cure of the Angina Suffocativa, etc.*, gave a description of the clinical and anatomic manifestations of diphtheria that was quite comparable, in its essential details, with that subsequently given by Bretonneau.

Though Bretonneau's teachings constituted a step in the right direction, and did much to relieve the confused notions upon the malady, it was not long before objections were raised to the grounds taken by him. The teachings of Home, from 1765, to the effect that there existed a disease, designated as croup, and characterized by the formation of pseudo-membranes in the larynx, were revived, and there was thenceforth a division of opinion, some adhering to the teaching of Bretonneau, viz., that all the pseudo-membranous processes in the upper air-passages were identical, while others, with Home, believed in the existence of two distinct affections. With the hope of clearing away doubts and shedding some light upon the disputed point, the question was taken up by the pathologists, and through the labors of Virchow, Weigert, Cohnheim and their pupils, the two processes were subjected to histologic study. The outcome of this work was a classification based entirely upon anatomic grounds and a nomenclature that was used only in its anatomic sense. From this standpoint it was taught that there existed: 1st, a true croupous process, characterized by the deposition of a fibrinous pseudo-membrane upon the surface of the mucous membrane; 2d, that there existed a true diphtheria, similarly characterized by the local appearance of a fibrinous condition, which was not, however, confined to the surface of the mucous membrane, but extended into it; and 3d, that there existed a mixed anatomic condition known as diphtheric croup, in which there appeared both the superficial pseudo-membranous deposit and the involvement of the deeper underlying structures; this latter being the local condition commonly seen in true diphtheria. The entire process in all cases was seen to be a coagulation-necrosis, the direct effect of the causative irritant, a process characterized by a combination of cell-death and inflammation, the coagulation and fibrin-formation resulting from the contact between the inflammatory serous exudate and the fibrin-ferment supplied by the dead cells.

While this is the anatomic nature of the local process in diphtheria, and constitutes the condition known as diphtheric, it is, nevertheless, one that occurs as a result of the action of many irritating agents; and, while always present as the local manifestation of diphtheria, it is often seen in other parts of the body than the throat, and in conditions that are etiologically distinct from diphtheria.

It is easy to see, therefore, that the use of the

[1] Read at the meeting of the Pathological Society of Philadelphia, held Nov. 8, 1894.

terms diphtheric and croupous in their anatomic sense, regardless of the causes underlying them, may, and doubtless often does, give rise to confusion. Though of the utmost importance in elucidating the nature of the tissue-changes seen locally in laryngeal and pharyngeal pseudo membranous inflammations, these observations afforded but little aid to the clinician in recognizing the nature of the various exudates *intra vitam*. He was still obliged to rely, as hitherto, upon the symptoms and the naked-eye appearances of the exudations; and it was then, as now, the experience of every clinician that these features of the disease are far too variable to admit of a positive diagnosis in all cases.

The means afforded for the correct diagnosis of the nature of these conditions constitute the first and most important outcome of the discovery of the cause of diphtheria. With the demonstrations by Loeffler, that there existed in the diphtheric deposits in the throats of all persons sick of diphtheria a distinct species of microörganism that was not present in other anatomically similar exudates, that the organism could readily be recognized, isolated and cultivated, and that it possessed the power, when introduced into susceptible animals, of reproducing conditions anatomically identical with those occurring in man afflicted with the disease, grounds for confusion could no longer exist, and from that time the question has been not so much with regard to the anatomic character of the local pathologic changes as to the presence or absence of the specific causative factor. If this agent is present, diphtheria exists; if it is absent, then the local conditions and constitutional manifestations must be attributed to some other cause, and the disease is not diphtheria.

Thus it soon became manifest that the dispute over the relation between diphtheria and so-called membranous croup was to be incontestably settled. By the bacteriologic and histologic study of the latter condition it has been found to be due to the activities of the same microörganism that is concerned in the production of diphtheria, and to present fundamentally the same histologic conditions that are found in the diphtheric exudate. I am aware that there are still individuals who adhere to the opinion that true, specific, fibrinous laryngitis occasionally occurs spontaneously; but, unfortunately for this view, it is usually supported by clinical evidence alone, and has rarely, if ever, been formulated from the results of bacteriologic study of the cases.

Still another local process characterized by fibrinous exudation has been shown by bacteriologic analysis to be etiologically identical with diphtheria. I refer to the affection of the mucous membrane of the nostrils known as membranous rhinitis, a condition that receives but little attention because of the mildness of its clinical course, but which, nevertheless, depends for its existence upon the activities of the same organism that is concerned in producing diphtheria. Because of their apparently innocent nature these cases are not considered as menacing to the health of individuals with whom they come in contact, and are not, therefore, isolated or otherwise regarded as dangerous, and yet examples are not wanting to show that they are communicable from one person to another, and there is some evidence to prove that true diphtheria has been contracted from them.

Another important question upon which there has been a conspicuous divergence of opinion, and which was also answerable only through the light shed by modern methods of research, is as to the local or constitutional origin of diphtheria. The careful study of an enormous number of cases occurring in man, and produced experimentally in animals, has demonstrated that the disease is purely local in its origin, and that the pseudo-membranous processes in the throat, the secondary manifestations in the internal organs, and the clinical symptoms, are one and all the result of a soluble poison, produced by a microörganism that has its seat of primary invasion in the mucous membrane of the upper air-passages. It is important to note that the disease is not a septicemia, in the sense of being associated with a distribution throughout the body of the microörganisms causing it, but is strictly a toxemia primarily, though a septic condition may be engrafted upon the toxic one later in its course.

Even the tissues in the throat in which the diphtheria-bacilli are growing give evidence of the effect of the poison independently of the immediate presence of the bacteria by which it was produced. In sections through the pseudo-membranes one sees that the most superficial layers contain bacteria in large numbers, among which the bacillus diphtheriæ can easily be recognized by its peculiar morphology; beneath this one sees a feebly-stained layer rich in cells but containing little or no fibrin, and in this layer the Klebs-Loeffler bacillus is often the only organism present; and especially is this the case just above the still deeper densely-stained fibrin-layer. The layer next to the mucous membrane is rich in fibrin, but contains no bacilli, and as a rule, no bacilli are found in the underiying necrotic mucous membrane.

The Klebs-Loeffler bacilli, we see, not only do not invade the infected mucous membrane, but do not usually even penetrate through the entire thickness of the diphtheric pseudo-membrane. The picture presented suggests a conflict at long range, so to speak, the invaders being the bacteria whose weapons are the easily soluble poisons manufactured by them upon the surface of the affected part, and through the absorption of which the tissues undergo

the peculiar metamorphosis seen in this disease. If our bacteriologic investigations are conducted further into the remote internal organs, there too, we find an absence of the specific microörganisms. This is true not only for the internal viscera generally, but likewise for those organs affected with the peculiar form of localized necrosis described by Oertel as so common in this malady.

It is not, however, unlikely that during the course of the disease a few scattered organisms may accidentally gain access to either the lymphatic or vascular circulation, and thus become deposited in remote organs, as they may also be carried thither through the phagocytic activities of wandering leukocytes. The possibility of finding diphtheria-bacilli in the internal organs at autopsies upon individuals dead of the disease has recently been demonstrated by Frosch, Wright, and others; but nothing that we have learned from the study of the conditions occurring in the deeper tissues leads to the belief that they are in any way dependent upon the immediate presence of the specific bacilli.

The poisons produced by the bacilli at the seat of primary invasion, to the absorption of which, as has been said, the secondary manifestations and constitutional symptoms are due, are likewise produced by the bacilli when growing under artificial conditions of cultivation.

When isolated, free from the organisms by which it was manufactured, it is seen to be capable of causing in susceptible animals identically the same group of tissues-changes that are produced when the bacilli themselves are introduced. The interesting and important features in connection with it are its nature, being analogous chemically to the venom of serpents, and the potency of its poisonous properties, which exceeds in degree that of almost any other substance with which we are acquainted. Roux and Yersin present some idea of the intensity of its action; they have estimated that 0.4 milligram of the dried poison is sufficient to kill eight guinea-pigs weighing each 400 grams, or two rabbits weighing each two kilograms, a degree of toxicity almost beyond the grasp of our imagination.

In 1888 Oertel directed attention to a group of pathologic conditions that he found in the internal organs of individuals dead of diphtheria; and more recently this subject has attracted additional attention through similar observations made by Welch and Flexner upon animals that had died of the experimental form of the disease. These changes consist of foci of a peculiar form of necrosis, varying in extent and scattered irregularly through the internal organs. They are characterized by nuclear fragmentation of the cells of the parts affected. The fragments into which the nuclei are seen to disintegrate are conspicuous for the readiness and intensity with which they become stained and for the manifold shapes which they are seen to assume, at times appearing as little else than dust-like particles strewn through the necrotic and hyaline area, or again as clusters of granules indicative of the location of the nucleus from which they originated; again, all manner of irregular and bizarre shapes that may be likened to whetstones, crescents, balloons, clubs, dumb-bells, etc., will be seen. Frequently a nucleus will appear as if drawn out so that it may present a tail-like elongation, and again it may be pinched and distorted. In certain spots there may be almost an absence of stained cells and fragments, but it is usually possible to detect faint outlines of cells and more or less of a refractive, granular substance that gives the staining reaction of fibrin. In the investigations of Oertel and of Welch and Flexner these necrotic areas in greater or less extent have been detected in all the internal viscera, being particularly prominent in the lymphatic apparatus, in the liver, and in the spleen. To a limited extent the same process was also detected in the muscles of the heart. While not strictly confined to the disease, diphtheria, this nuclear fragmentation is nevertheless always an accompaniment, and affords, by the rapidity with which it is produced, another illustration of the energy of action possessed by the poison producing it. It has been seen to occur in the internal organs of animals with all its characteristics in so short a time as thirty-eight hours after inoculation with small quantities of cultures of the bacillus diphtheriæ.

Through similar methods of investigation a satisfactory understanding of the pseudo-membranous anginas of scarlatina and measles has also been reached. These processes are not, as has been supposed, of a diphtheric nature, etiologically speaking, though it is often impossible to distinguish them from diphtheria by the means ordinarily possessed by the clinician. When not complicated with diphtheria the local manifestations in these diseases are etiologically quite distinct. They are due, as a rule, to a streptococcus similar to and probably identical with that concerned in the production of erysipelas and phlegmonous forms of inflammation. A clearer understanding of the pathology of these conditions has recently been reached through the studies of Booker, who states that from the material examined it is safe to say that the local changes seen in the throats of patients with scarlet fever and measles are anatomically distinct from those seen in diphtheria, and that the anatomic alterations observed in the deeper structures of the body resulting from the scarlatinal virus, unlike those secondary to diphtheria, are accompanied by the immediate presence of streptococci, and are largely suppurative in nature, appearing to be the direct outcome of the organisms associated with them.

From this imperfect review of the more important of the mooted questions in connection with diphtheria and allied pseudo-membranous inflammations of the upper air-passages, it is manifest that such doubts could only have existed as a result of incomplete acquaintance with the causes underlying the several processes; and with the exact means of differentiation that have been afforded by newer methods of investigation our conception of the nature of these processes, particularly of diphtheria, occupies a place on a par with that of tuberculosis, anthrax, and other infectious maladies from which so much of value has been learned. The discovery of the bacillus diphtheriæ and the practical application of the knowledge gained by this discovery has shed a flood of light upon these processes that could not possibly have been obtained through any other channel of study.

As bacteriologic study of diphtheria and conditions with which it might be confused met with wider application certain irregularities were encountered. It was discovered that the causative factor, the genuine bacillus diphtheriæ, was simulated in morphologic and biologic peculiarities by what was believed to be another organism which was distinguishable from it only by the absence of pathogenic properties. This latter organism was known as the pseudo-diphtheric bacillus, and was considered as distinct from the genuine diphtheric bacillus simply because of its inability to kill susceptible animals when inoculated into them subcutaneously. As this organism had been seen in conditions not believed to be diphtheria, as it had been seen in mild cases of a doubtful nature, and as it had been seen in genuine diphtheria in association with the true diphtheria-bacillus, it became necessary to determine its relation to the virulent bacillus diphtheriæ before the value of the latter organism as an absolute means of diagnosis could be firmly established. The simplest way out of the difficulty was to consider them as in no way related, but as entirely distinct species, and this, in fact, is what was done.

It was, however, soon observed that the genuine, virulent diphtheria-bacillus was liable to fluctuate in the degree of its pathogenic properties, at times possessing these to such an extent that when inoculated into guinea-pigs death resulted in from thirty-six to forty-eight hours, while again the period of inoculation was much longer, often reaching five and six days, and in not a few cases organisms were obtained from undoubted cases of diphtheria that failed to give more than a temporary local reaction when inoculated into these animals. In many cases of diphtheria the two organisms have been seen to be simultaneously present, and in the observations of Roux and Yersin it was detected that as the disease advanced toward recovery the number of the less virulent and non-virulent forms became more numerous in proportion. Singular as it may seem, the only, or principal point of distinction between these two organisms, if distinct they are, was held to be the ability of the one and the inability of the other to cause the death of the inoculated animals, and no attention whatever was paid to the nature of the local reaction that was caused by the organism that failed to kill. I have taken occasion to examine the condition of the tissues at the seat of inoculation in animals into which non-virulent forms of this organism had been introduced, and have found that, though the death of the animals did not follow the inoculations, locally, tissue-changes indistinguishable, save in degree, from those produced by the fully virulent forms were to be found; there was the same edema, though less in extent, the same hyaline condition of the muscle-fibers, the same fibrin-exudation and the same characteristic fragmentation of nuclei that one finds locally in the animals inoculated with the true, fully-virulent bacillus of diphtheria. This, I think, offers another argument in favor of the opinion already expressed elsewhere by Roux and Yersin, myself and others, that the diphtheric bacillus and the so-called pseudo-diphtheric bacillus are one and the same organism, the latter representing the former, whose virulent properties have become diminished.

It must not be inferred, from what has been said in regard to the gradual appearance of the attenuated forms of this organism with the establishment of convalescence, that when recovery is complete, the organisms are no longer virulent. Such a conception would not accord with the results of observations upon convalescents from diphtheria. The study of a large number of cases has demonstrated that with recovery many of the diphtheric bacilli in the throat not only do not lose their virulence and vitality, but retain both these properties for days and weeks, and it is often possible to isolate from the throats of convalescents from diphtheria virulent diphtheria-bacilli for as long as two and three weeks after all traces of the disease have disappeared, a point of inestimable importance in establishing rational prophylactic measures against the spread of the malady.

It is interesting that it is not always possible to establish a dependence between the clinical course of the disease and the degree of virulence possessed by the organisms causing it. From many of the most alarming cases organisms are often isolated that are much less virulent, as determined by their period of incubation in animals, than those seen in other cases, the clinical manifestations of which are much milder. There are undoubtedly modifying conditions at play, upon whose nature we can do

little more than speculate—conditions, possibly, of individual susceptibility or tolerance to the action of the poison, or some local factor favors or retards the absorption of the poison from the point at which it is produced; certain it is that in its clinical, anatomic, and certain of its bacteriologic phases, diphtheria varies within very wide limits, but possesses at the same time certain features that serve to distinguish it from other diseases with which it is likely to be confounded.

With the further application of bacteriologic methods to the study of diphtheria, attention was turned to the question of immunity against the disease, and finally to the discovery of a cure.

The outcome of experiments conducted principally by Behring, Kitasato, Wernicke, Wassermann, Brieger, Ehrlich, Roux, Martin, and others, is to apply to diphtheria the principles of the important observations made by Behring and Kitasato upon tetanus, to the effect that the blood-serum of animals that have been immunified against tetanus possesses not only the power of conferring immunity against this disease to animals into which it may be injected, but that it also possesses the property of arresting the malady after it is already in progress. This observation represents the foundation-work of blood-serum therapeutics, around which so much interest has lately centered.

Through the combined labors of those cited, and more especially through the investigations of Behring, it has been found possible to do in diphtheria just what he and Kitasato did in tetanus, viz., it is possible to render susceptible animals immune to diphtheria by the introduction into their tissues of the modified poisons produced by virulent diphtheria-bacilli, and to obtain from the blood of these animals serum that will not only afford immunity to other susceptible animals, but which, as in the case of tetanus, has the power of arresting the disease after it has already been in progress for a time. When this method of treatment is applied to animals that have purposely been infected with pure cultures of the bacillus diphtheriæ, and not too long after infection, the results are so uniformly favorable as to place the operation far beyond the experimental stage. If, however, the disease is permitted to proceed for a time the results are not to be counted upon with such certainty; in short, the success of the operation is dependent upon the stage to which the disease has progressed. In mixed infections, that is, those in which some other organisms, especially the streptococcus, commonly associated with the bacillus diphtheriæ in human diphtheria are present, the experiments of Roux and Martin indicate that the results of the treatment are still less certainly favorable.

You are all too well acquainted with the astonishingly favorable statistics that have been presented recently for hospitals in which this method of treatment has been employed, to require mention of the reduction in the death-rate from diphtheria since the use of this method, and I believe it safe to predict that as our knowledge upon the subject increases, and as we become more familiar with some of the obscure points the results of the treatment will be still more favorable.

As to the *modus operandi* of the immunifying process and the therapeutic action of the serum of the immunified animals, we are still in the dark; but the hypothesis of Buchner, to the effect that the introduction into susceptible animals of the modified poisons produced by virulent bacteria serves as a stimulus to the integral cells of the tissues, and awakens a reactionary change that results in the appearance in the circulating blood of a something that is highly antagonistic to the fully toxic poisons that may subsequently gain access to these animals, seems most reasonable, and at present meets the requirements of the case more satisfactorily than any of the other explanations that have been advanced.

A PLEA FOR A METHODICALLY-WRITTEN TEXT-BOOK ON ANATOMY.[1]

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It is my belief that students of anatomy would better learn and remember the innumerable and more or less complicated facts of anatomy if they had at their disposal a text-book written with constant uniformity and rigorous method. The guide or course followed in describing the organs should be inexorably systematic and always the same for each and every one of the organs, and should apply as well to the largest organs as to the smallest, even to a cell. It might be dry and monotonous reading for the cursory reader or for office-reading, but it would be of the greatest assistance to those who have to learn and to remember.

It is true that all text-books on anatomy have about the same main divisions or headings in describing an organ, but it is specially in the details and smaller things under those headings that the students need systematic and uniform assistance. All superfluous words, remarks and dissertations were better omitted, so as to leave the facts as simple and prominent as possible; but the guide does not interfere with extensive descriptions.

Students of ordinary intelligence can readily supply in their own minds connecting words, and even sentences. Thus such ponderous books as we now

[1] Read at the meeting of the Association of American Anatomists, at Washington, D. C., May 29, 1894.

see carried around by students would be reduced one-third or one-half.

I have elaborated such a guide, and I here present it for consideration to the members of the association. Of course, the guide or course describing an organ should be followed more or less closely according to the importance of the organ or of the facts connected with it. If some facts connected with one particular part of an organ are of no importance, they should be skipped, and stress should be laid upon those facts only which present a practical bearing or a scientific interest.

It would be essential to follow the guide systematically, as one fact is so intimately connected with the following one that the place where to say it cannot very well be altered without disturbing the harmony of the whole. There is a place for everything, and everything should be in its p ace. We should say at the beginning what belongs there, and not say it in the middle of the description. Again, we must say in the middle of it what belongs there, and not say it at the end.

It may seem difficult and complicated at first, but after one has committed the guide thoroughly to memory, so as to have it at the tongue's end without hesitating to think, it will be seen how smoothly it works, and how much it will assist. It is impossible to forget or skip anything, as every few words almost in the guide call for an answer at its proper place, which answer is easily remembered by one who has studied the organ two or three times with this severe system and training.

In describing an organ we should give: 1st. Definition of the organ, its synonymy and etymology; 2d. Divide the organ into separate parts, if necessary; 3d. State the number; 4th. The dimensions; 5th. The situation; 6th. The direction; 7th. The means of fixity; 8th. The mobility; 9th. The shape; 10th. The surfaces, borders, angles, or extremities, as base and apex; 11th. The structure.

To avoid repetition the definition should be based upon the function of the organ.

If the organ is a complex one, such as are sphenoid and temporal bones, it is important to divide it into several parts, describing each part as a separate organ.

In connection with the number, it should be stated whether the organ under description is single or double, and whether there are not sometimes supernumerary organs, such as the spleen, of which in some instances there may be one, two, or three supernumerary organs; also, whether in cases of double organs they are known to unite sometimes to form but one, such as is the case occasionally with the two kidneys, which unite by their extremities to form the so-called "horse-shoe kidney."

We must say, also, if the organ is ever known to be absent altogether.

The dimensions of the organ should be described, either by comparing the organ to some familiarly known object or to some other organ of the human body (this is the relative dimension), or by actual measurement in inches or fractions (these are the absolute dimensions of the organ). When the organ is a hollow tube or a channel one should give the dimensions of its caliber or bore.

The situation should be first stated in a general way, or in regard to the region it occupies; then its relative position should be mentioned, that is, the position it occupies in regard to the surrounding organs; thus, for the spleen, we say it is situated in the left hypochrondrium, below the diaphragm, above the kidney, behind the stomach, etc.

The direction of an organ should be stated first as compared with the axis of the body, and then as compared with its own axis; thus, the fibula is vertically directed as compared with the axis of the body, and is twisted as regards its own axis.

The means of fixity of organs are either connections by adhesions through more or less loose or tough connective tissue, or ligaments formed of folds of the membranes enclosing them, or by vessels, or they are supported by organs situated beneath; thus, the liver has ligaments formed by the peritoneum; its upper border is closely adherent to the diaphragm by rather tough connective tissue; it is partially held in position by the hepatic veins passing from its substance to the ascending cava, and it is supported as on a soft cushion by the stomach and intestines.

The mobility of an organ affects the whole organ or a part of it only; thus, the head and part of the body of the pancreas are firmly bound down, whereas the tail is more or less movable. The organ may be movable by itself, as are the intestines, or its motion is communicated by another organ, such as the motion communicated from the diaphragm to the liver. Finally, it should be stated whether at times the mobility does not become excessive without interfering with the functions; thus, the kidney will sometimes escape more or less from its bed of areolar and adipose tissue, and, without impairing its usefulness, float about in the abdomen.

The shape of the organ should be next considered. It is very important to define it accurately, either by comparing it to a geometric figure, or by comparing it to the shape of a familiarly-known thing, because, according to its shape, an organ presents more or less surfaces, borders, angles, or extremities, or a base and an apex.

In describing each surface we should mention the other names by which it is known, also its ex-

tent, whether it is large or small; also its direction, whether it is directed forward or backward, above or below, or in an intermediate direction; also the form or shape of that surface, whether it is plane or concave or convex, either in the vertical or the horizontal direction, and if it is or is not the same all over the surface; also its peculiarities, which are represented either by projections (folds, processes, tubercles, protuberances, ridges, or crests) or by depressions (orifices, blind foramina, grooves, canals). When enumerating numerous peculiarities we should invariably begin on the median line and then on the sides, proceeding always from before backward, and from above downward, and from within outward.

In describing a groove we should say if it leads or not to a canal, its depth and the organs contained therein, artery, vein, nerve, or a membranous process, or a special organ. In mentioning an orifice we should describe its size, shape, boundaries, structure, and contents. Finally, we should give the relations of the surface, which may be with skin (*i. e.*, what part of the surface of the body its course corresponds to); or with bones, joints, muscles, viscera, vessels, nerves. The same course is to be followed in describing a border; first, give its other names; then its extent, then its shape; say if it is blunt or sharp, or bevelled at the expense of one surface or the other.

All thick borders should be divided into two edges or lips, and an intermediate interstice, giving the peculiarities and relations of each, then its relative direction, whether vertical, horizontal, oblique, forward or backward, above or below, inward or outward; afterward, its absolute direction, rectilinear or sinuous, concave or convex; next mention its peculiarities and its relations, following the same course as for a surface. The same course applies to the description of the angles of the organ, or to its extremities, or to the base and apex, if it should have any.

It is now the time to describe the structure of the organ. This should always be preceded by mention of its color and its consistency, as these properties are connected with the structure. In speaking of its consistency we must say whether the organ is soft or hard, friable or not, elastic, dilatable, or retractile. As regards the structure we should first describe the envelops; a great many organs and most viscera are provided with a serous coat, reduced to its endothelial layer. Next comes a fibrous or fibro-elastic and muscular coat, bearing or not a special name or several names, varying in thickness and resistance, more or less elastic, presenting an external surface more or less elastic, and more or less closely connected with the surrounding tissues and organs; an internal surface more or less intimately connected with the proper tissue or substance of the organ, and sending into this proper tissue filaments or processes that divide the interior of the organ into a large number of alveoles, in which are deposited the proper or characteristic anatomic elements of the organ. Almost always the fibrous coat is reflected at the point called the hilum into the interior of the organ, and then divides into smaller and smaller processes, which join those given off from the inner surface, and assist in forming the alveoles. The whole of these processes and the alveoles which they form constitute what is called the stroma or fibrous skeleton of the organ, which supports the more delicate elements of the proper substance. This stroma is more or less apparent, according to the organ; it is, like the fibrous coat, formed of more or less dense connective tissue, to which is often added elastic fibers and smooth muscular fibers in greater or lesser quantity. The proper substance of many organs is divided into an external or cortical substance and into an internal or medullary.

The proper or characteristic elements of an organ are either cells or fibers, tubes, or prisms, arranged in a peculiar manner according to the organ, to which are added capillary arteries, veins, and lymphatics, and nervous filaments. The capillaries in many organs present a most interesting and often characteristic arrangement. If the organ described is a gland with an excretory duct, that duct should be described as a separate organ. If the organ is a hollow one, like the stomach or the heart, we should describe the interior with its lining membrane. We should mention with care the consistency of the membrane, its thickness, its elasticity, degree of adhesion of its deep surface, and in regard to its free surface, its color, its peculiarities, the nature of its epithelium, and, if any, the kind of glands which it contains. Some organs present a peculiarly interesting chemic composition which should be mentioned. Usually the point of interest lies in the relative amounts of the higher organic and the lesser organic elements.

To be thorough the mode of development of the organ should now be given, and the changes that it undergoes from its embryonic formation to the very oldest age.

Finally, in a last paragraph, we should mention the peculiarities and varieties of the organ, due to sex, habits, trades, constitutions, individualities, nationalities, and races.

The same course is applicable to bones, ligaments, vessels, and nerves, although it may seem odd at first, since it is quite a departure from the old plan. It would be a waste of time before such an audience to give any example by actually describing a muscle or a nerve after this plan.

All the foregoing points and details are summarized in the following table:

Guide to Describe an Organ (*applicable to all organs*).

1. Definition.
   Synonymy, etymology, history.
2. Division of a complicated organ into separate portions and description of each portion as a separate organ.
3. Number.
   Single or double.
   Supernumerary organs.
   Absence of the organ.
4. Dimensions.
   1. Relative size, or size compared to other organs or to familiar objects.
   2. Absolute size.
      Diameter, transverse, vertical, antero-posterior; caliber.
5. Situation.
   1. General situation or region it occupies.
   2. Relative situation, as compared to the surrounding organs.
6. Direction.
   1. Compared with axis of body.
   2. Compared with its own axis.
7. Means of fixity.
   Adhesions.
   Ligaments.
   Vascular connections.
   Supported by other organs.
8. Mobility.
   Of the whole organ.
   Of a part of it.
   Intrinsic mobility.
   Extrinsic mobility, or communicated by other organs.
   Extent of mobility.
   Exceptional mobility.
9. Shape.
   Compared to a geometric figure.
   Compared to the shape of a familiarly-known object.
10. Surfaces.
    Synonymy.
    Direction: Forward or backward.
    Above or below.
    Intermediate direction.
    Shape: Plane, concave, or convex.
    Vertical or transverse direction.
    Peculiarities.
    Projections: folds, processes, ridges, or crests, tubercles, protuberances.
    Depressions: orifices (size, shape, boundaries, structure, contents), blind foramina; grooves and canals (depth, extent, contents, vessels, nerves, or organs).
    When enumerating peculiarities begin on the median line, and then on the sides; proceed from before backward, from within outward, or from above downward.
    Relations: With skin (*i. e.*, to what part of the surface it corresponds) or
    With bones, joints.
    Muscles.
    Viscera.
    Vessels and nerves.
11. Borders.
    Synonymy.
    Dimensions.
    Direction.
    1. Relative direction: vertical, horizontal, oblique, forward, or backward, above or below, inward or outward.
    2. Absolute direction: straight, sinuous, concave, convex.
    Shape: Blunt or sharp, or bevelled at the expense of one surface or the other.
    Peculiarities, as for surfaces.
    Relations, as for surfaces.
    All thick borders ought to be subdivided into two edges or lips, and an interstice. Give for each, peculiarities, insertions, and relations.
12. Angles or extremities: same as borders.
    Base and apex: same also.
13. Structure.
    Color.
    Consistency: density, friability, elasticity, contractility.
    Envelops or coats: thickness, resistance, elasticity.
    External surface, relations, adhesions.
    Internal surface, relations, adhesions, processes from internal surface. Reflections into the interior of the organ.
    Stroma: If delicate or apparent, is composed of connective tissue, or elastic, smooth, muscular fibers.
    Proper or characteristic elements.
    Cells, fibers, tubes, prisms.
    Capillary arteries, veins, lymphatics, nerves.
    Excretory duct of glands (as a separate organ).
    Lining membrane of a hollow organ.
    Thickness, consistency, elasticity, adherent surface (degree of adhesion).
    Free surface: Color, peculiarities, epithelium, glands.
14. Chemic composition.
    Organic and inorganic elements.
15. Development of the ages.
16. Peculiarities or varieties, or anomalies due to sex, habits, trades, constitution, individualities, nationalities, races.

Meningitis due to the Bacillus of Typhoid Fever.—Daddi (*Sperimentale*, Juillet, 1894; *Revue Internat. de Méd. et de Chir. Prat.*, No. 18, p. 335) has reported the case of a boy, nine years old, who in the course of an attack of typhoid fever was seized with symptoms of meningitis, to which he succumbed. In the creamy exudate covering the upper surface of the brain and cerebellum, as well as in two small abscesses situated symmetrically at the level of the spines of the scapulæ on either side, the bacillus of typhoid fever was found in pure culture.

CLINICAL MEMORANDA.

OPERATIVE TREATMENT FOR THE CURE OF VASCULAR NEVI.[1]

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I DESIRE to make a preliminary report of a case of vascular nevus of the face, in which we have instituted operative measures for the cure of a condition that, while not painful, is annoying alike to the possessor and to the immediate friends. To be afflicted with a vascular growth, in the form of a telangiectasis, nævus flammeus, or angioma simplex, involving nearly one side of the face, means almost social ostracism. It is a source of constant mortification. The individual often becomes reticent, and avoids social intercourse because he is avoided by others. He prefers almost any other deformity to this; his mental suffering is intense, and he will submit to almost any form of treatment, however painful or prolonged, that he may be rid of what he almost considers a moral stigma. If the treatment fails his despondency increases; he feels himself a branded outcast. It seems strange that a deformity which in no way interferes with functional activity should usually so unfit the individual for the ordinary enjoyment of life. No amount of reason or moral suasion will give him peace of mind; nothing short of such physical means as will remove the hideous blemish.

One who has seen many of these cases and has been called upon to treat them will testify how difficult it is to achieve results satisfactory alike to his patient and to himself. The time-worn methods of caustics in their varied forms, while they frequently destroy the cutaneous vascularity, thereby removing the annoying color, leave a mass of cicatricial tissue, which, by its contraction, causes such distortion of the features that the exchange of a red or bluish blotch for the resulting deformity can hardly be called an improvement.

A careful microscopic examination discloses the fact that angioma simplex, which is by far the most common form, consists of an intricate, preëxistent, and newly-formed network of tortuous, frequently anastomosing, bloodvessels, somewhat larger than ordinary capillary vessels, containing at short intervals varicose dilatations, spindle and cylindric sacculi, with walls somewhat attenuated (Ziegler). We observe small vascular lobules located about the sweat-glands and hair-follicles (Billroth), constituting vascular districts, which coalesce, forming larger or smaller vascular areas. In the connective tissue, which has increased, and the intervascular spaces, are many lymphoid cells, single and in groups (Kaposi). We find this vascular growth usually occupying the rete mucosum and the corium, nearly always reaching and frequently occupying the subcutaneous cellular tissues, reaching as deeply as the hair-follicles and sweat-glands. This vascular network is composed of a surprisingly large number of bloodvessels, so that in artificially-injected sections (Ziegler) they are so numerous that the intervascular connective tissue seems exceedingly insignificant.

It will be seen that any caustic measures, to be effective, must destroy the entire thickness of the integument, including a portion of the subcutaneous connective tissue, and cause a burn of the third degree. While this mode of treatment may be of service in small nevi, it becomes exceedingly objectionable in those large forms that extend over the greater part of one side of the face, on account of the resulting cicatricial contraction.

Such remedies as nitric acid, glacial acetic acid, solution of caustic potash, which have so long been popular, have been, as they should be, relegated into the forgotten past. Their action, while destructive to the tissues to which they were applied, usually effectually obliterates the cutaneous vascular supply, and cannot be limited to the affected tissues. The destructive action frequently extends to the facial muscles, and sometimes to the nerves, so that we have the effect of a facial paralysis. The vascular obliteration by means of subcutaneous injections of tincture of ferric chlorid or tincture of cantharides is dangerous on account of the risk of embolism, which in several instances has caused death (Van Harlingen, Holgate). Vaccination, so highly recommended, may be of service in nevi of limited size, but can be of little service in extensive affections. Of extensive linear scarification, while it has improved a number of my cases, I cannot say that the results have been satisfactory. The use of the Paquelin cautery, in the practice of others and in my own, has left linear cicatrices, which always remind one of the seamed face of the German duel-loving student, which in Germany may be considered a mark of bravery, but in this country might suggest the battle-scarred ruffian. With ligatures I have failed, and could hardly have expected to succeed when it is remembered that in rare instances only large arterial trunks communicate directly with the vascular growth. With injections of alcohol, as proposed by Holgate, I have had no experience, but they would seem to me to be open to the same objections as those of ferric chlorid. A solution of 8 per cent. corrosive sublimate in collodion as a caustic has proved successful in small nevi, but in the large varieties has been almost a failure in my hands. Electrolysis has given me more satisfaction than any of the methods mentioned. The electrolytic action is entirely under the control of the operator. The destructive action of the needle can be checked in an instant. As large an area can be treated as is desirable or seems indicated. But in spite of the greatest care a streaked appearance of the nevus cannot be prevented. We cannot judge of the depth or the amount of the tissue involved by the vascular structure.

It occurred to me that if we could devise a method by which the entire structures involved by the vascular growth could be accurately and completely removed, and the cutaneous defect thus produced be so repaired as to prevent extensive cicatricial contraction, and to establish a normal color of the part, we should have found an ideal method. In the following case I have made an attempt to accomplish this end. While my experience has been limited, yet the results promise so much that I feel encouraged to continue work in this

[1] Read before the Missouri Valley Medical Society, at Council Bluffs, Iowa, September 20, 1894.

line, with the conviction that with increased experience we shall be able to record improved technique and better results.

M. B., twenty-four years of age, has always been well except for the diseases incident to childhood. She stated that from birth she had been afflicted with a "port-wine mark," possessing the same proportionate size throughout life. I found, on inspection, an area beginning in the left temporal region, extending along the margin of the lower eyelid toward and to the median line of the face, reaching as high as the brow, extending over the left side of the nose downward over one-half its surface, and involving the entire thickness of the upper lip. From the left angle of the mouth the line of demarcation extended with a downward curve upward to the temporal region. The color of this area was a reddish-purple, but all color disappeared on pressure. The margins of this discoloration appeared irregular and sharply defined, but on careful inspection faded rapidly into the normal cutaneous color—constituting what is ordinarily known as a nævus vasculosus, or an angioma simplex. The left side of the face was decidedly enlarged, particularly the left half of the upper lip. The alveolar mucous structure of the left half of the superior maxilla contained a vascular new-formation, soft, compressible, of a dark-purple color—a cavernous angioma.

On September 11, 1893, a solution of 8 per cent. corrosive sublimate in collodion was applied over the outer third of the nevus. In one week a slough exactly corresponding to the surface covered by the sublimate collodion film separated, leaving a granulating excavation, which rapidly filled and underwent epidermization in two weeks. Then the second third of the nevus underwent a similar process, and finally the remaining portion. A wedge was excised from the inner side of the lip, and the alveolar angioma was treated with galvanism by means of needle-punctures. The patient was discharged from the hospital with the hope that in time there would be capillary obliteration sufficient to change the nevus to the desired color. She returned in three months. The only improvement noted was a change from a purple hue to a dark pink. The patient had been very despondent, had secluded herself and despaired of ever being freed of her misfortune. The thought suggested itself, why not remove the entire abnormal growth with the knife, and immediately cover the defect with transplanted normal integument.

Accordingly, on March 12, 1894, under chloroform-anesthesia and strictly aseptic conditions, one-third of the affected integument was dissected away, cutting well into the subcutaneous tissues, so as to insure the entire removal of the growth. The left arm having been rendered aseptic, several Thiersch flaps were removed, of sufficient length and breadth to cover the facial defect, except at the outermost angle, where, experimentally, a small portion of the affected skin was placed in order to note what changes, if any, would take place in it. The denuded surface having been entirely covered with Thiersch flaps, a thick coating of iodoform was applied, then a piece of perforated aseptic silk protective, then iodoform-gauze, a cotton pad, and a binder. This dressing was removed in forty-eight hours, and the wound was irrigated with sterilized water. All the flaps showed evidences of adhesion. A dressing was applied as before, and changed daily. In one week all flaps had become firmly adherent.

It was interesting to observe, from day to day, the changes that took place in the angiomatous graft which was placed at the outer angle of the wound. In forty-eight hours it had become adherent; its color was of a darker shade, and it seemed thicker. It grew darker and thicker from day to day, until the tenth day, when it had assumed a dark-purple hue. It was compressible, but immediately became swollen again when pressure was removed. The graft was then removed with a knife, and it was found to have become firmly adherent. Vascular communication had become established. The graft was found to have become a cavernous angioma.

On this day a second section of integument was removed and covered with Thiersch flaps, and dressed as before. The upper end of one flap, under the margin of the eye, became detached during the first dressing, and this sloughed, and the wound healed by granulation.

Two weeks later the last third of the nevus was dissected away. Considerable difficulty was experienced in removing the integument about the inner canthus and between this point and the brow. The skin was not very thick at this point, so that there was danger of injuring the canaliculi. Thiersch flaps were used as before, and became rapidly adherent. It was now found that at the point where one of the flaps which had been placed with one end against the denuded lower lid, and had been detached accidentally during the first dressing, and later sloughed, the wound healing by granulation, contraction had taken place and everted the inner third of the lower lid, requiring a second denudation and flap.

I must confess that it may be too early to judge of the result at the present time; still the appearance of the site of the old nevus is such as to be in every way encouraging. The appearance is identical with that observed in other cases in which flap-transplantation was employed after the removal of other forms of neoplasm and in granulating surfaces after burns, the skin becoming in the course of time of a normal appearance. In the case under consideration there remains no trace of nevoid structure, the whole surface is gradually becoming of a lighter shade, and the only discoloration remaining is of a pinkish hue, as I have invariably found in transplanted skin of recent date.

The method pursued in this case seems rational and promising, because, first, we remove the entire nevoid structure, and, secondly, because the defect is covered with integument of a normal character. It is like the removal of sod, poor with wire grass, from a lawn and replacing it with a new blue-grass sod, which is more pleasing in appearance. The immediate transplantation of skin-flaps prevents the contractions and the consequent deformity seen so constantly after such methods as cauterizations of every description. The wound-repair is prompt, rapid, and painless.

The removal of the nevoid structure should be as rapid as consistent with good work, as the hemorrhage is likely to be profuse. A slow and tedious dissection might entail such a loss of blood as to be harmful; cut away rapidly, swabbing just enough to enable you to see that you are beneath the vascular zone. Have artery-clamps lying near, in order that no time may be lost in catching spurting points. When denudation is com-

plete, and all bleeding points tied, apply a thick wad of iodoform-gauze, and direct an assistant to make firm pressure while you uncover the previously disinfected arm, which, meanwhile, has been wrapped in a sublimate towel. Then with your razor, ground flat on one side and concave on the other, you carefully remove a flap of skin, your left hand having grasped the arm in such a manner as to make the skin tense. This skin-flap may be from four to six inches long, and from one to one and one-half inches wide, and of a thickness reaching into the papillæ. As you cut, the flap will shrink together on the concave side of the razor. When long enough, detach it from the skin. Remove the gauze pad, spread the flap on the denuded surface, and tease it into place with a probe and grooved director. Avoid thumb-forceps, as you may bruise the flap and destroy its vitality. It will be found that the flap has contracted nearly one-half; therefore it is necessary to cut flaps nearly twice as large as desired. A sufficient number of flaps are used to entirely cover every part of the vivified surface. Use extreme care about the lower lid; be very liberal with the flap, exercise every precaution so that the edge of the flap be not turned under, as in this case it would fail to adhere. If the flap should fail to adhere at this point, or is accidentally torn off with the dressing, immediately apply a new graft, in order that healing by granulation, with consequent contraction and eversion of the lower lid may be prevented—a deformity quite as undesirable as the nevus itself.

Every antiseptic precaution must be observed to obtain the best result. The surface to be operated upon must be rendered aseptic, and the operator's hands, sponges, instruments, especially the razor, must be rendered aseptic. The arm, or rather the portion of the body from which the flaps are removed, must be given the same careful attention. The field of operation must be carefully surrounded with sublimated towels, and an aseptic cap applied to the head. If we are surgically clean, the transplanted flaps are almost certain to adhere. If any detail is overlooked, we are almost certain to fail.

A CASE OF CONGENITAL DEFORMITY OF THE UPPER AND LOWER EXTREMITIES AND OF THE SPINAL COLUMN.

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On September 22, 1891, I was called to attend Mrs. C., who was reported to be suffering from an attack of "cramps." I found my patient to be a young woman, eighteen years of age, of small stature, thin in flesh, pale and anemic, and of a highly nervous temperament. I was told by members of her family that she had been marrried only four months and had not had her menses during that time.

After observing the patient a few moments, it was evident that she was in the first stage of labor. Upon digital examination I found the os partially dilated and the occiput presenting. The abdomen was not as large as is usual in pregnant women at full term. Labor progressed normally for about one hour and a half, when the uterine contractions began to grow weak and finally almost ceased. One hour later, when I returned to my patient, I found the labor-pains quite severe and following one upon the other in close succession; from this time on labor advanced normally to delivery, four hours and twenty minutes after I was first summoned to the case.

A boy-baby with numerous deformities was born. These consisted in absence of the lower end of the spinal column, the coccyx, and the protruding backward of the lower end of the sacrum. Double club-foot was present, double club-hand, displacement of both ankles, imperfect knee-joints, and left hip-joint. There was also imperfect development of the wrist-joints and elbow-joints, flat-feet, flat-hands, imperfect external ears, a double great toe on each foot to the distal joint, with double nail. The fingers were normal and their joints perfect; the great toe on each foot was unusually long, fully twice its normal length; the other toes were perfect. The child was a strong, fleshy, vigorous, and healthy infant.

Perhaps the most striking deformity was the absence of the coccyx and the pointing backward of the sacrum. This deformity is well shown in Fig. 1. It was not a

Fig. 1.

spina bifida; the prominence seen above the anus was of bone, and resistant to the touch, and not of that smooth elastic nature found in tumors caused by incomplete closure of the bony canal in the spinal column. It contained no fluid, and could not be reduced in size by pressure. The right foot was in the most extreme form of talipes equino-varus; the sole of the foot pointed upward and rested on the abdomen. The foot was flat, the plantar fascia and internal lateral ligaments were shortened, and the tibialis anticus and posticus muscles were contracted. There was marked displacement of the tarsal bones; the astragalus was tilted downward, the scaphoid was displaced inward and downward by the action of the tibialis posticus, and the tubercle on this bone was very prominent; there was in addition marked rotation at the astragalo-scaphoid and calcaneo-cuboid junctions. The displacement of these bones gave the foot a short, flat appearance, somewhat resembling the human hand. The os calcis was rudimentary, and in consequence the heel was less prominent than normal. The articulation at the ankle-joint was imperfect, owing to the displacement of the astragalus. The foot was strongly adducted. The right knee-joint was displaced inward at a right angle, the tibia and fibula were shorter than normal and curved inward, and the patella was rudimentary on the right side. The femur was normal and in the socket at the acetabulum. The right hip-joint was perfect in development, and admitted of free

motion in all directions. The left foot was in extreme talipes equinus. The gastrocnemius and soleus muscles were shortened, the tendo Achillis was tense, so that flexion of the foot was impossible ; the foot was slightly adducted. The sole of the foot rested on the scrotum and buttocks, from the strong flexion of the limb at the knee and thigh. The left knee was strongly flexed; efforts at extension were met by bony and ligamentous resistance. The left hip-joint was also in extreme flexion, and could be extended only to an angle of 45°. The left femur was normal in length and development. The flexion at the hip-joint was due to a contracted condition of the flexor muscles of the thigh.

The deformities were alike on both sides in the upper extremities, and resembled very much those found in the lower limbs. The humerus was normal in length and perfect in development on both sides. The shoulders were perfect and admitted of free motion. The deformities of the upper extremities are well shown in Fig. 2. The

FIG. 2.

forearm was tightly flexed upon the arm and could not be extended beyond an angle of 35°, from contraction of the biceps muscle. The radius and ulna were shorter than normal, and curved inward; the ends of these bones were rudimentary. Efforts to extend the forearm at the elbow caused a creaking noise, especially when forced beyond an angle of 35°. The wrist-joints were rudimentary, the hands were adducted. The palms of the hands rested on the arms in the deltoid region ; there was slight motion at the wrist-joints. The fingers were normal in length, and the phalangeal joints perfect. The external ear was marked by the absence of part of the lobule. The head and trunk were perfect in form and development, except for the absence of the coccyx.

The infant cried lustily after birth, was well nourished, and gave every promise of living if properly cared for and nourished.

The father, when he saw the hideousness of the deformity, and being desirous also to conceal the birth of a child so soon after his marriage, placed it, contrary to my wishes and advice, in a foundling-home in Philadelphia. The physician of that institution reported its death as due to debility when it was twenty days old.

Medical literature is replete with instances in which vivid mental impressions are supposed to have produced a direct effect upon the development of the fetus. Mrs. C. gives a history of having received at least two severe mental shocks during her period of gestation—one seventy-one days after conception, and another three months before parturition. On February 25, 1891, while employed in a paper-box factory, she saw the clothing of a friend caught by a revolving shaft, which drew her to the floor, and as she fell her limbs and arms were twisted about the shaft. Some of her clothing was torn off, and there was considerable blood lost by the tearing out of part of her hair. Mrs. C. was close by when the accident occurred, and was very much frightened, and did not fully recover from the shock for several months.

She was, as I have already said, naturally of a weak, nervous temperament, which condition was, no doubt, augmented by her having conceived out of wedlock and having to support herself by working in a close, dusty room in a box-factory. Her surroundings were not calculated to produce that cheerfulness and equanimity of mind desirable for pregnant women; on the contrary, her weak body and agitated mind were well calculated to produce the result in her offspring that has been here shown, if sufficient emotional excitement were brought to bear upon her. She gives February 25th as the day of the fright. It was the birthday of a lady friend, who visited her in the factory that day and saw the accident with her. Supposing the child to be a full-term baby, if we count back 280 days, it would bring the day of conception on December 16, 1890. This was seventy-one days before February 25th, the time of the fright.

Mrs. C. gives the history of having had a second fright in June, 1891, about six months after the beginning of pregnancy. At this time her own clothing was caught by a revolving belt, and part of it torn from her body. This accident does not seem to have made as vivid an impression upon her mind as the first, as she does not recall it in all its minutiæ, as she does the one of February 25th.

I wish to mention in this connection that the woman for three or four months prior to parturition had been in the habit of lacing herself very tightly, so as to conceal from friends and relatives the near approach of her maternity. She had so far misled her relatives that they administered anodynes for her "cramps" prior to sending for me. Authorities on this subject do not believe that tight lacing has anything to do with the production of deformities.

On November 19, 1892, fourteen months after her first confinement, I delivered the woman of a perfectly formed male child. This second child has since developed a strumous diathesis, and at present has enlarged suppurating glands in the neck.

The husband has lately died of tuberculosis of the lungs, with which disease he had suffered for five years or more. His family history is tuberculous. The mother's relatives are all healthy, and none is deformed.

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GUNSHOT-WOUND OF THE SPLEEN AND KIDNEY; ABDOMINAL SECTION; HEMOSTASIS BY DEEP SUTURE; RECOVERY.[1]

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GUNSHOT-WOUND of the spleen, recognized, treated, and cured, is believed to be of sufficient rarity to justify placing the following case on record.

The patient was a male negro, twenty years of age.

[1] Read before the Southern Surgical and Gynecological Association, Charleston, S. C., Nov. 13, 1894.

Two hours previous to entering the University Hospital, March 21, 1894, he had been shot with a small-caliber rifle from a distance of twenty feet, the weapon being directly behind him and he being erect. His urine was slightly albuminous; the pulse, temperature, and respiration normal. There was a bullet-wound three inches to the left of the spine just below the last rib, from which blood oozed. Dr. Spruill, Resident Physician, after proper cleansing, enlarged the wound, found that the kidney had been injured and that the bullet had passed onward, presumptively into the peritoneal cavity; he filled the wound lightly with gauze and notified me. I saw the patient three hours later, about five hours after the shooting. The only change that had taken place since entry into the hospital was an increase of five per minute in the number of respirations; the pulse and temperature were not changed, and there was no appearance of shock and no pain. External examination of the abdomen by touch and palpation revealed nothing, not even painfulness. Dr. C. W. Mitchell, one of my colleagues, thought that the respiratory movement was rather less marked over the left than the right side of the abdomen. I could not detect the difference however.

The patient was anesthetized, laid on the belly, and the wound, after being enlarged, was examined. The upper portion of the left kidney was perforated, and dark blood flowed from the peritoneal cavity beyond. This large wound was filled with gauze, the patient turned on the back, and the abdomen freely opened along the left semi-lunar line. A moderate amount of blood was free in the peritoneal cavity; no wound of the intestine could be discovered, but the spleen was found perforated, blood flowing freely from the wound of entrance, as well as from the wound of exit; the latter wound, in the concavity of the organ, was slightly the larger of the two.

The perforation through the spleen was about three inches from the free lower border. Unwilling to subject the patient to splenectomy, I attempted to arrest the bleeding in the following manner: A long needle threaded with silk was passed entirely through the spleen central to and parallel with the bullet-track; the long ligature was then tied over the free border of the organ so as to press the surfaces of the wound together tightly enough to arrest bleeding, yet not to tear through the splenic tissue; the ends of the ligature were cut short, the peritoneal cavity cleansed by copious irrigation with hot water and the abdominal wound closed. The kidney was tamponed with gauze through the dorsal wound. Convalescence was uneventful; the anterior wound healed by primary union; urine flowed from the dorsal wound for two days only, union by granulation taking place. The patient left the hospital well, April 2d.

The literature treating of spleen-wounds is meager. Probably about all that is known will be found in the *Medical and Surgical History of the War*, Part II, Surgical Vol., p. 149 et seq., and it is not necessary to recapitulate here the information there set down.

Symptoms and treatment deserve mention. The wound being small, hemorrhage was not profuse, and no abdominal organ save the spleen was wounded. I could not recognize any evidence of spleen-wound without inspection; pressure, handling, percussion, revealed nothing, the belly remaining soft and flaccid. Twice I have opened the abdomen for gunshot-injury, finding wounded intestines; both cases had the belly-walls much more rigid than had the subject of this report. The lumbar incision showed me dark blood flowing from within the peritoneal cavity, and for this reason the abdominal section was performed, and not because of information elicited by handling.

Treatment of a wounded spleen by celiotomy places that organ in the category with other peritoneally covered organs, and calls for no comment; but the mode adopted for the arrest of hemorrhage is noteworthy. The classic treatment for a perforating wound of the spleen is splenectomy, because it has been held that bleeding is not otherwise to be stopped; this we now know is not so, but that it is possible by ligature to induce hemostasis. In case the wound is larger than in the instance here reported, it would be necessary to interfere without delay and pass several sutures in the manner stated, so as to make pressure over a larger area. When rupture of the spleen has occurred this method of hemostasis seems especially indicated, for thereby support to the injured viscus would be afforded.

A CASE OF APPENDICITIS.

BY J. W. HICKMAN M.D.,
OF TACOMA, WASHINGTON.

A. W. L., aged thirty-three years, was in the early afternoon of September 19th suddenly seized with excruciating pain in the belly in the right inguinal and right lumbar regions. The only symptoms prior to this were a chill of several minutes' duration about twelve hours previously, and in the morning a feeling of "stiffness," as he expressed it, referred to the abdomen, but to no particular part of it. The forenoon was occupied in dictating letters of business and in looking after a sick member of his household. I first saw him about 5 P.M., and was told that in addition to the pain he had vomited a few times. His pain was more intense in the region noted, but radiated here and there over the whole abdomen. There was no very well-marked tenderness. The temperature was 102°, the pulse 120, the hands and feet cool. The bowels had been moved the day previously, the last time they ever did move. I gave the man 12 grains of Dover's powder and 2 grains of calomel in four powders, and directed that one be taken every half-hour, and further directed that two hours after the last powder a heaping teaspoonful of magnesium sulphate be given every hour and a half, to be stopped when the bowels should be thoroughly evacuated. I was called to see the patient at 5 A.M. of the next day; the pain was so excruciating that I gave him ⅓ grain of morphin hypodermatically, which relieved him completely. The pain was referred at this time to the entire abdomen, and was accompanied by a widespread tenderness, more intense, however, over the ileo-cecal region. The temperature was 99.2°, the pulse 140, tense, and shotty to the finger. The face wore an ominous, relaxed expression, as the man slept after the morphin. His breathing was thoracic. There was now no difficulty in making a diagnosis of general peritonitis. Notwithstanding that he had taken about 2 ounces of magnesium sulphate, most of which he had retained, his bowels had not operated, nor had there been any rolling or rumbling of the intestines. About 10 A.M. I was

again hastily summoned on account of pain. Realizing the gravity of the case, I asked for a consultation. The same conditions obtained except that the temperature had risen to 101.5°. The same treatment was continued. Three hours later there was scarcely a perceptible pulse at the wrist; the breathing was about 30 and shallow; the hands and feet were cold; in short, the patient was in collapse. He died at 11.20 P.M., about thirty-four hours after the initial pain. A post-mortem examination was held the next morning, and from a pint to a quart of fetid pus was found in the abdominal cavity, with no adhesions except very feeble ones at a couple of points. The appendix was gangrenous and had a ragged-looking opening in one side.

The unusual feature of this case is, of course, that there was practically no complaint until the rupture of the appendix gave rise to a general peritonitis. There was obtained an indistinct history of an attack, similar to this at its beginning, eight years ago.

Since writing the foregoing note I have operated on a case forty hours after the first pain, finding the appendix gangrenous and ready to give way at several points, and the cecum in the same condition at the appendicular junction over an area about the size of a silver quarter.

MEDICAL PROGRESS.

Puerperal Infection with the Bacterium Coli Commune.—EISENHART (*Archiv für Gynäkologie*, Bd. xlvii, Heft 2, p. 189) has reported the case of a woman, thirty-two years old, who, following her fifth, uncomplicated, labor, presented fever, pain in the right side, and an offensive vaginal discharge. The functions of the bladder and bowels were undisturbed, but an obstinate swelling of the right foot appeared. The uterus was displaced backward and somewhat to the right. Upon its right margin a painful exudate was detectable, while the cervix was surrounded by a suppurating ulcer. The temperature was 104°, the pulse 122. A diagnosis of acute purulent parametritis was made. Following the use of the ice-bag, the administration of opium and the employment of vaginal injections of lysol, the symptoms soon disappeared. In a short time, however, pain appeared at the flexure of the right thigh, where there was found a dense infiltration, extending three or four fingers' breadth above Poupart's ligament, and beneath which could be felt a thrombus occluding the femoral vein. Local applications and manipulations failed to afford relief. In a short time an abscess formed above Poupart's ligament, which on palpation yielded a sense of the presence of air. A similar sensation was imparted over a small area below Poupart's ligament. Additional tumefaction was observed, involving the upper third of the right thigh. This was sensitive, soft and elastic. The patient referred certain peculiar sensations and sounds to the bladder at the termination of micturition. The urine removed by catheter was of orange-yellow color, and emitted a peculiar but not disagreeable aromatic odor. It had a specific gravity of 1015, was of a feebly acid reaction and deposited considerable sediment. It contained large quantities of albumin, but no blood. Microscopically large numbers of colorless corpuscles were found, but no tube-casts. Bacteriologic investigation disclosed the presence of the bacterium coli commune. The swelling of the thigh increased, and edema of the dorsum of the right foot and the greater and lesser labia became added to the symptoms. An incision into the swelling gave exit to a large quantity of thick, creamy pus, containing many large and small air-bubbles. This pus had a peculiar, though not putrid or fecal odor. Bacteriologic examination disclosed also the presence of the bacterium coli commune. The abscess-cavity at first secreted considerable quantities of pus, which later diminished under the use of methyl-violet in the form of bougies. For a short time the condition of the patient improved, the swelling and edema disappeared, pus was freely discharged in moderate amount, but subsequently the woman became worse. Hyaline casts were for the first time found in the urine. Symptoms of nephritis with uremia developed and finally progressed to a fatal issue.

On post-mortem examination a moderate excess of fluid was found in the pericardial, pleural and peritoneal cavities. The intestinal serosa was smooth and glossy, and free from adhesions excepting on the part of the rectum with the adjacent uterus. The spleen was enlarged and soft. The kidneys were in a state of parenchymatous degeneration, together with amyloid change. The external wound communicated with a sub-peritoneal sinus passing from the middle of the horizontal branch of the right pubic bone backward and upward toward the vertebral column, and terminating at the level of the promontory of the sacrum in a cavity about as large as a pigeon's egg, filled with thick pus, and not distinctly circumscribed from the surrounding structures, which appeared undermined and friable. Behind and to the right side of the uterus were numerous cicatrices. An incision into the upper third of the right thigh disclosed the presence of pus distributed between the muscles and other structures.

A Convenient Clinical Manometer.—A portable manometer for the estimation of blood pressure in the radial artery, devised by CHAPMAN (*Birmingham Medical Review*, September, 1894, p. 146), consists of an ordinary U-shaped mercurial manometer having the upper end of the shorter limb, which is ten inches in height, bent at a right angle, and fitted into a perforated india-rubber stopper, over which is drawn and securely ligated an ordinary air-tight india-rubber finger-stall. The longer limb of the U is double the length of the shorter, and open at its end. The shorter limb is graduated into fourteen centimeters. Zero begins at the upper level of the mercury, about an inch below the angle; the space above communicates with the interior of the finger-stall, and contains air. Both limbs of the tube are fractured, the longer limb in mid-length, the shorter in its horizontal portion, the ends being united by means of thick India-rubber tubing. This arrangement enables the tubes to be bent upon themselves, in which position they are retained by means of a rubber band, and this prevents the escape of the mercury at the open end of the longer limb, and allows the instrument to be put into a case of convenient size.

The application of this manometer is devoid of difficulty. The patient's wrist is adjusted beneath the finger-stall, in a slightly-extended position, and if pressure is then made on the finger-stall by the fingers of the

operator the mercury will fall in the shorter and rise in the longer limb, and the difference between these levels will represent the intra-arterial radial blood-pressure. The hope is expressed that the instrument will come into general use, its claims to favorable recognition being based upon the simplicity of its application, its small cost, which "is no more than that of a clinical thermometer," and upon the valuable information so quickly and easily obtained by its use.

The Occurrence of the Bacillus Diphtheriæ Outside of the Body.—Wright and Emerson (*Centralbl. für Bakteriologie und Parasitenkunde*, Bd. xvi, No. 10, 11, p. 412) have made a study of the dust upon the floor of the diphtheria-pavilion of the Boston City Hospital and upon the clothing and person of the attendants, to determine if diphtheria-bacilli could be found. The diphtheria-pavilion is isolated and divided into large and small apartments. It contains seventy beds. The general sanitary condition is good. The results were as follows:

Of four cultures from floor-sweepings from the brush and the cloths used in dusting, but one (from the brush) was positive as regards diphtheria-bacilli. Other bacteria were also present. Of four examinations of the dust and other matters adherent to the shoes of the attendants, three showed the presence of a small number of diphtheria-bacilli, together with other bacteria. Cultures were made from the hair of the attendants in four cases, with positive results in one. Examination of the margins of the dresses of the attendants, of the bed-clothing, of the shirts of the patients, and of the finger-nails of the attendants, were all negative as regards diphtheria-bacilli, as was also an examination of the air of the pavilion. In two of the five examinations in which bacilli were found the degree of virulence was slight.

The Bacteriology of Diphtheria.—From a study of eighty-two cases of diphtheria Wright (*Boston Med. and Surg. Journ.*, vol. cxxxi, No. 14, p. 329), concludes that there is practically no difference in virulence to be observed between the bacilli derived from severe and mild cases of diphtheria. Cases in which true diphtheria-bacilli have been present for a longer or shorter period of time furnish fewer virulent cultures than cases of recent beginning.

The diphtheria-bacillus does not, as a rule, lose its virulence by long-continued residence in the pharynx and air-passages. It exists in all degrees of virulence down to innocuousness, as far as is shown by the results of its inoculation into guinea-pigs, and the intensity of the reaction in the animal bears no constant relation to the symptoms presented by the case from which it was derived. There is no relation to be observed between the age or sex of the patient and the virulence of the bacillus.

Hepatic Colic without Gall-stones.—Lépine (*Intern. klin. Rundschau*, 1894, p. 387; *St. Petersburger med. Woch.*, No. 36, p. 331) contends that hepatic colic may result from simple spasmodic contraction of the gall-bladder or biliary ducts. This opinion is based on both clinical, pathologico-anatomic, and experimental evidence. From the clinical point of view reference is made to the hepatic colic observed in hysterical individuals as a result of emotion, without discoverable cause in the intestinal evacuations. In some individuals the ingestion of certain articles of food is followed by hepatic colic. A case is cited in which after death no concretions were found in the choledoch duct, although a few small grains were present, together with active contraction of the walls of the duct. In dogs spasmodic contraction of the lower portion of the choledoch duct may be induced artificially. It is maintained that contraction of the biliary canals may be induced reflexly.

The Sterilization of Catgut.—Tschernig (*Hospitals Tidende*, 1893, No. 48; *Centralbl. f. Chir.*, No. 38, p. 897) has employed dry heat in the sterilization of catgut for sutures and ligatures, with satisfactory results. Catgut thus prepared retains its strength, and is easily preserved. The gut is cut in suitable lengths for use in operation, and enclosed in double sealed envelops. These are placed in a sterilizing oven and the temperature gradually raised, an hour being occupied in increasing the heat to 176° F., and two hours more in increasing it to 302° F. For three hours the gut remains exposed to this temperature, and then the oven is permitted gradually to cool. Bacteriologic investigation has shown gut thus treated to be absolutely sterile.

The Functions of the Supra renal Gland.—As the result of a further study (see The News, July 21, 1894, p. 71) Auld (*British Medical Journal*, No. 1762, p. 745) concludes that the functions of the supra-renal gland are the destruction of certain effete products of metabolism which are of the nature of ptomains, and the elaboration of a secretion which is absolutely essential to the blood (hemopoietic). The destruction of the gland is followed by an auto-intoxication and a profound alteration in the chemistry of the blood, which entails, amongst other things, degenerative or nutritional changes in the nervous and digestive systems, and derangement of the color-regulating metabolism.

Pneumonic Orchitis.—Prioleau (*Le Mercredi Médical*, 1894, No. 36, p. 439) has reported the case of a man of advanced years in whom a suppurating orchitis developed in the interval between two attacks of pneumonia. The first attack lasted for twelve days, and was of an insidious type. Three days after its termination the patient was seized with pain in the left testicle, with chill and fever. An abscess formed, examination of the pus from which disclosed the presence of diplococci. The patient recovered, but a month later was seized with a second attack of pneumonia, which terminated fatally.

The Disinfection of Catgut.—At a meeting of the Surgical Society of Berlin, Schimmelbusch (*Deut. med. Woch.*, 1894, No. 38, Supplement p. 97) described the method of treating catgut for surgical purposes employed in the clinic of Prof. v. Bergmann. This consists in first removing the contained fat and then placing the gut in a 1 per cent. solution of mercuric chlorid in 80 per cent. alcohol, and frequently stirring. Repeated bacteriologic examination has shown such catgut to be free from microörganisms.

THERAPEUTIC NOTES.

The Antitoxin-Treatment of Tetanus.—DOUGLAS (*British Medical Journal*, No. 1765, p. 934) has reported the case of a gardener, sixty-three years old, who was bitten upon the thumb by a dog. The man did nothing to the wound, but continued to work in his garden. Five days later he began to feel some stiffness about the jaws, with difficulty of swallowing. When seen, three days after this, the teeth were clenched, and the jaws could be opened only about one-quarter of an inch. The original wound was quite healed. Eserin salicylate, gr. $\frac{1}{100}$, was injected subcutaneously, and chloral hydrate, gr. xx, was ordered every three hours. On the following day the man was easier, and the trismus was not so evident, but the next day there was considerable pain in the back and abdomen. Then followed stiffness in the legs and back, and convulsions, while the temperature began to rise. On the thirteenth day half a tube of Tizzoni's antitoxin dissolved in 22 c.cm. of sterilized distilled water was injected by seven punctures into the abdomen and thighs, with strictest aseptic precautions. The condition of the patient, however, failed to improve, and gradually progressed to a fatal issue. Not much was to have been expected from the specific treatment instituted at so late a stage of the disease.

Pilocarpin in the Treatment of Acute Articular Rheumatism.—DRAPPIER (*Journal des Sciences Médicales de Lille*, No. 37, p. 243) reports the case of a man, forty-five years old, who suffered yearly from two or three attacks of acute articular rheumatism. At first the salicylates were employed with success, but subsequently these failed. Other remedies were also employed without avail. In one such attack pilocarpin was employed, subcutaneous injections of $\frac{1}{6}$ grain of the nitrate being made daily. These induced profuse sweating and rendered the patient perfectly comfortable. The treatment was thus pursued for five days more and proved entirely successful; nor did the symptoms return.

In the Treatment of Premature Alopecia LASSAR (*Gaz. Méd. de Liège*, August 9, 1894) recommends washing the hairy scalp with soap and water for about ten minutes daily, using tar-soap and lukewarm water, and finally cold water; the hair should be dried, and frictions with the following solution made: Water, 250 grams; mercuric chlorid, 50 centigrams; glycerin and cologne-water, each 50 grams. This may be followed by shampooing with absolute alcohol to which has been added from ½ to 1 per cent. of naphtol, and anointing the scalp with the following mixture: Salicylic acid, 2 grams; tincture of benzoin, 3 grams; Neat's-foot oil, 100 grams.

The Treatment of Syphilis by Hypodermatic Injections of Mercurials.—At a recent meeting of the French Society of Dermatology and Syphilography AUGAGNIER (*Annales de Dermatologie et de Syphiligraphie*, tome v, Nos. 8–9, p. 927) contended that the employment of mercurial injections in the treatment of syphilis ought to be reserved for exceptional cases, on account of the attendant inconvenience and danger. If in cases of cerebral syphilis, when the indications are extremely urgent, one may at once begin injections. If the urgency is not clear inunctions should be given the preference, and only in case of their failure should resort be had to the injections.

For Bronchitic Asthma.—

℞.—Extracti stramonii . . . gr. ⅛.
Potassii iodidi . . . . gr. v.
Ammonii carbonatis . . . gr. iv.
Tincturæ lobeliæ æther. . . ♏v.
Aquæ chloroformi . q. s. ad ℥ss.
Misce et fiat mistura.
S.—A tablespoonful from every four to six hours.
Provincial Medical Journal.

In the Treatment of Chronic Articular Rheumatism, LETULLE (*La Presse Médicale*, September 29, 1894, p. 313) recommends rest in bed, the repeated application of the actual cautery to the affected articulations, passive movements of the joints, sulphurous baths, alternating with warm douches of simple or sulphuretted water, in conjunction with the internal administration of potassium iodid in doses of from 7½ to 30 grains in the twenty-four hours.

For Infantile Colic.—

℞.—Tinct. belladonnæ . . . gtt. x–xi.
Infus. canellæ . . . . f ℥ij.—M.
S.—℥j every hour until the pain is relieved.
For the constipation, upon which the colic usually depends, a teaspoonful of cod-liver oil may be administered thrice daily. URRIOTA—*La Semaine Méd.*, No. 53.

For Leukoplakia LEISTIKOW (*Monat. f. Prak. Dermat.* Bd. xix, No. 7) recommends the following formula:

℞.—Terræ siliceæ . . . 22½ grains.
Resorcini . . . . 45 "
Adipis . . . . 7½ " M.
S.—Make a paste and apply topically several times daily by means of a cotton swab.

For Metrorrhagia.—

℞.—Ext. opii. . . . . gr. jss.
Tinct. hydrastis. Canad. . . f℥ss.
Tinct. zingiberis. . . . . f℥ijss.
Syrup. aurantii cort. . . . f℥j.
Aquæ destil. . . . . f℥iij.—M.
S.—A tablespoonful every three hours.
LUTAUD—*Frauenarzt; Centbl. f. d. ges. Ther.*

Salol in Herpes Zoster.—BILLSTEIN (*Phila. Polyclinic*, vol. iii, No. 33, p. 324) reports cases of herpes zoster in which successful results were obtained from the topical application of salol in powder. Twenty grains of the drug in an ounce of ether were given, with instructions to make the application twice daily by means of a camel's-hair brush.

For Lichen Urticatus.—

℞.—Spiritus rectificati } . . . āā f℥j.
Saponis mollis }
Olei cadini . . . . . f℥v.
Aquæ . . . . . ad f℥x.
Misce et fiat lotio. S.—To be applied night and morning.
The Practitioner.

The Medical News.

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SATURDAY, NOVEMBER 17, 1894.

THE MEDICAL NEWS' SPECIAL REPORT ON THE TREATMENT OF DIPHTHERIA WITH THE ANTITOXIN.

At a very considerable expense of labor, time, and money, and under strictly scientific conditions, The Medical News instituted, in Philadelphia, the treatment of certain cases of diphtheria with the antitoxin. At the time not an instance of such treatment was known to have taken place in Philadelphia, and there was no injecting material to be had here. Despite many difficulties, we have succeeded in being able to lay before our readers in the current issue the partial reports of five cases thus treated. The investigation is to be continued. For most willing and valuable assistance and coöperation, we are under great obligations to Dr. Louis Fischer, of New York, who having some serum at his disposal, has made a number of visits to Philadelphia for the purpose of making the injections; to Dr. William Welch, of Philadelphia, in charge of the Municipal Hospital, as also to Dr. Bemis, his able resident and assistant; to Dr. D. Braden Kyle, the bacteriologist, of Philadelphia; to Drs. Frese and Kneass, of the German Hospital; to Dr. Coplin, and to others. To the publishers of The Medical News for their generosity, encouragement, and hearty interest, is due our especial gratitude. We trust that the results, direct and indirect, of our endeavors may be found of value to the profession.

THE TREATMENT OF DIPHTHERIA WITH THE ANTITOXIN.

It is a great misfortune, a profound obstacle to medical progress, to have been over-confident and enthusiastic in the adoption of a new treatment or method of procedure. Whatever truth there was in the "Tuberculin Craze;" whatever of final and unexpected good may have resulted or may still result from Koch's premature announcement, it cannot be questioned that a great mistake was committed, either popularly or professionally, or both, and that this error has resulted in a reactionary skepticism and a failure to test ever so conservatively the value of serum-therapy, and especially that branch of it relating to diphtheria. We have been so fearful of over-zealousness and of possible blundering that we have delayed overlong the duty of testing, even carefully and scrutinizingly as we should test any such thing, the discovery of a therapeutic method of great probable value. All at once, now, we are awakening to a realization of the profound importance of this treatment, and as with all late converts, we are perhaps in some danger of excessive trust and propagandism. We, therefore, wish to urge again the old necessity of caution and prudence in the interests of true medical progress. Let us be in no ridiculous haste. Let us be sure our serum is genuine, that the cases treated are those of proved diphtheria, and let us be on our keenest guard in reporting our cases, that we do not mistake *post-hoc* recoveries for *propter-hoc* therapeutics.

But, in the interests of the same scientific spirit and progress, do let us no longer delay putting this method to the test. It comes to us with a good record, and from excellent sponsors. That we have delayed for a year or two even to think of it, much less to practically experiment with it, still much less to prepare our own immunized serum, is not to the credit of American medicine.

The following figures are given by *La Médecine Moderne*, 1894, No. 85, p. 1319, to show the results obtained by the treatment of diphtheria with the antitoxin: Behring and Kossel, 30 cases, with a mortality of 20 per cent.; Ehrlich, Kossel, and Wassermann, 67 cases, with tracheotomy, with a mortality of 44.9 per cent.; 153 cases, without

tracheotomy, with a mortality of 23.6 per cent.; Katz, 128 cases, with a mortality of 13.2 per cent.; Weilger, 63 cases, with a mortality of 28 per cent.; Aronson, 192 cases, with a mortality of 13 per cent.; Roux, 448 cases, with a mortality of 24.33 per cent.—making a total of 1081 cases, with an average mortality of 24 per cent.

Roux (*British Medical Journal*, No. 1765, p. 931) relates that in one of the hospitals of Paris the total mortality in the diphtheria-wards for four years was 51.71 per cent., while among 448 children treated from February 1 to July 24, 1894, with the antitoxin, there were 109 deaths, a mortality of 24.5 per cent. On the other hand, during the same time, 520 cases of diphtheria were treated at the Trousseau Hospital, but without the antitoxin, with 316 deaths, a mortality of 60 per cent. In cases of simple diphtheria not requiring tracheotomy the mortality for four years has been 33.94 per cent. During the months of trial at l'Hôpital des Enfants it fell to 12 per cent., while during the same time at the Trousseau Hospital the mortality was 32 per cent. In the cases of "croup d'opérés" requiring tracheotomy the mortality for four years has been 73.19 per cent.; with the antitoxin-treatment it fell to 49 per cent, while during the same time at the Trousseau Hospital the mortality was 86 per cent.

There have been recorded in the *British Medical Journal* 39 cases of diphtheria treated with the antitoxin at the hands of a considerable number of practitioners, with 3 deaths, a mortality of 7.6 per cent.

It is announced that the British Institute of Preventive Medicine is prepared to furnish the antitoxin at the bare cost of production, which it is believed will be about 12 or 18 cents for the ordinary dose.

Katz (*Berliner klin. Wochenschr.*, July 16, 1894; *Lancet*, No. 3713, p. 1004) relates that the mortality from diphtheria in the Kaiser and Kaiserin Friedrich Kinderkrankenhaus in Berlin was, in 1890, 50.4 per cent.; in 1891, 32.5 per cent.; in 1892, 35.4 per cent.; in 1893, 41.7 per cent.; and from the beginning of 1894 until March 14th, when the antitoxin-treatment was begun, 41.8 per cent. From March 14th till June 20th, 1894, 128 cases, in all of which the bacillus of Loeffler was detected, were treated with the antitoxin, with a mortality of 16.5 per cent., as compared with a mortality of 37 per cent. for the same period of the previous year. Of 47 mild cases, all recovered; of 35 more severe cases, 1 died; of 42 still more severe cases, 11 died; while all of 4 septic cases died. In no case was the antitoxin found to act injuriously. In mild cases the dose was gradually increased from 5 to 7.5 c.cm.; in severe cases from 3 to 5 c.cm. to 20 c.cm. A weaker solution was employed as a prophylactic in 72 cases exposed to infection, and only 8 of which were attacked.

Ehrlich (*Medical Press and Circular*, No. 2894, p. 429) has reported 40 cases of diphtheria, of which 20 were "tracheotomy-cases," treated with the antitoxin, with 4 deaths. Of 41 other cases not thus treated 18 died. In another group of 48 cases treated with the antitoxin there were 6 deaths.

Maurice (*Lancet*, No. 3713, p. 973) has reported two cases of diphtheria treated with the antitoxin, one successfully, the other unsuccessfully. The fatal case occurred in a delicate, weakly child four years and three months old, who, when seen on the fourth day of its illness, was pallid and collapsed. Twenty minims of the antitoxin were at this time injected; on the following day twenty minims more; on the next day again twenty minims, and a day later seventeen minims. The child could not, however, be brought out of its condition of collapse, and finally succumbed. The other case occurred in a well-nourished girl, two years and six months old, who was seen on the second day of her illness. On the third day two c.cm. of the antitoxin were injected, and on the fourth day one c.cm. Convalescence soon set in and progressed to ultimate recovery. In the first case it is believed that life was prolonged as a result of the injections, and in the second there was no doubt that great benefit was derived from the use of the antitoxin.

Rice (*British Medical Journal*, No. 1764, p. 891) has reported two cases of diphtheria successfully treated with the antitoxin. Both were in women, aged thirty-four and thirty years respectively. In one eight minims of Aronson's serum were injected on the morning of the second day, and again in the evening; six minims on the third day, and eight minims on the fourth and fifth days. In the second case eighteen minims were injected on the second day, nine minims in the morning and again in the evening of the third day.

Maclachlan (*British Medical Journal*, No. 1765, p. 933) has reported a severe case of diphtheria in a boy, thirteen years old, in which a fatal termination was apprehended, and who, on the fourth day of his illness, was given an injection of forty minims of

Aronson's antitoxin into the back. After the injection the child fell into a gentle slumber lasting for five hours. Improvement gradually took place, the temperature alternately rising and falling for a few days, and convalescence shortly set in and led to final recovery.

Gleason (*Medical Record*, No. 1253, p. 598) has reported the case of a boy, eight years old, in which on the second day of an attack of scarlatina a fibrinous exudate made its appearance on both tonsils and pharynx. The tonsils were greatly enlarged and swallowing was difficult. The exudate gradually changed its appearance, and upon the seventh day the case was diagnosticated as one of true diphtheria engrafted upon the scarlatinal angina. The glands of the neck were enlarged and an excoriating nasal discharge was present. Twenty minims of Aronson's *Heilserum* were injected, and in six hours forty minims more. Within twenty-four hours the temperature fell from 104.6° to 99°, with a corresponding amelioration of the symptoms. Convalescence was thereafter speedy.

Macgregor (*Lancet*, No. 2714, p. 1027) has reported the case of a boy, ten years old, in which on the tenth day of an attack of diphtheria the aspect and general condition of the patient indicated rapid collapse and early death. An injection of 15 minims of the antitoxin at this juncture was soon followed by sleep and distinct improvement. From this time on the progress of the case was favorable and advanced to final recovery.

Bokai (*Lancet*, No. 3714, p. 1065) reports 35 cases of diphtheria treated from September 21st to October 22d, with the antitoxin, at the Budapest Stephanie Hospital for Children, including 9 cases of pharyngeal diphtheria, 7 of associated pharyngeal and nasal diphtheria, 4 of associated pharyngeal and slight laryngeal diphtheria, and 15 cases of grave laryngeal diphtheria. The oldest patient was twelve years of age, but the majority were under four. Among the whole number there occurred 5 deaths, a mortality of 14.33 per cent. The significance of this result is apparent when compared with the mortality during the month of October of the years 1891 (56.8 per cent.), 1892 (42.9 per cent.), and 1893 (61.7 per cent.). The immunizing influence of the serum was less positive.

Frith (*British Medical Journal*, No. 1766, p. 1007) reports a case of diphtheria in a child, eleven years old, in which an injection of 19.5 c.c. of the antitoxin into the right flank on the second day of the attack was followed by a favorable termination. Characteristic bacilli were found in the false membrane from the throat.

Fowler (*British Medical Journal*, No. 1766, p. 1007) also reports a case of diphtheria successfully treated with the antitoxin. It occurred in a girl, thirteen years old, who received an injection of 2 c.c. of Aronson's serum on the second day of her illness.

Wakeling (*British Medical Journal*, No. 1766, p. 1008) has reported a fatal case of diphtheria treated with the antitoxin, occurring in a girl six-and-a-half years old. On the eighth day, when the child was weak and the breathing difficult, an injection of 6 c.c. of Aronson's serum was made. Slight improvement followed, and on the second day a second injection of 3 c.c. of serum was made. The breathing, however, grew progressively more difficult, and finally tracheotomy had to be performed. For a short time after the operation improvement appeared to take place, but the heart began to fail, and death occurred rather suddenly.

Recognizing the lamentable slowness of our American profession in testing the value of this method, The Medical News has sought to stimulate enterprise by instituting treatment in a too limited number of cases, employing therefor what little serum has been obtainable. The results are partly shown in the report presented elsewhere in the current number of The Medical News. We hope many others will be moved to institute similar experiments, and to make public the closely-scrutinized, accurately-reported results. The News of last week contained the report of a case by Dr. Catlin, which in many respects was an instructive and typical one. Elsewhere in this issue will be found a trustworthy report of the meeting of the Pediatric Section of the New York Academy of Medicine, which, with commendable spirit, has devoted an evening to the discussion of the subject. We also refer with pleasure to a most suggestive report communicated November 9th by Dr. Muehleck to the Surgical Section of the College of Physicians of Philadelphia.

The cases reported by Dr. Muehleck were five in number, occurring in the same family in children from eleven months to six years of age. All the injections were made in from twenty-four to thirty-six hours after the beginning of the attack. For immunization, one cubic centimeter, and for therapeutic purposes from one-and-a-half to two c.c. of Aronson's serum were used. Of the five children

four were attacked. Two of these (one eleven months, one six years of age) were not treated with the antitoxin, owing to inability to obtain it, and these two, although treated by the hitherto generally accepted rules of practice, died. One child that had mingled freely with the other cases, and in whose throat typical bacilli were found, was inoculated with the antitoxin as a prophylactic measure, and was not attacked by the disease. In all of the cases except one, the bacteriologic tests proved the presence of the Klebs-Loeffler bacillus. Of the two cases injected with the antitoxin, both recovered; in one tracheotomy was indicated owing to involvement of the larynx, but the stenosis was markedly ameliorated within twenty-four hours after the injection; in the other the mucous membrane of the tonsils, the soft palate and the pharynx was involved, but without stenosis. After the injections there was a rapid fall of the temperature within twenty-four hours, the membrane became fatty and pultaceous and came away in four or five days.

EDITORIAL COMMENTS.

Ne Quid Nimis.—There is a strange psychologic fatality about the American character that makes it run to excess in whatever it does. The reserve of tact and discrimination, the instinctive knowledge of coming or already-passed limitations, the impossibility of foreseeing the need of the brake until the engine has either jumped the obstruction or has been smashed to smithereens—all this seems to have been left out of our intellectual outfitting. Instead of quietly and moderately plundering the taxpayers of a city, our American methods inevitably end in Tweedism. Instead of exercising and training the body by judicious athletics we have modern foot-ball—a spectacle for gods and men! Instead of a decent party egotism we have in politics an exuberant rabidity that makes an editorial writer roar with laughter at his own assumed virtue and at his own extravagances of mendacity about the other party. Instead of Socialism we have Coxeyism. Instead of temperance we have either dead-drunkenness or prohibition.

Nor in medicine and in pseudo-medicine can we escape "the defects of our own virtues." Here also we note the peculiar power of crazy excess, the lack of restraint, the disdain of Solon's *ne quid nimis*. A patient told us the other day that himself and his family had taken thirty-two dozen bottles of an anti-rheumatic patent medicine. He found that it was as effective against every other disease as against rheumatism! What a roaring farce this of thousands and thousands of newspapers of this country, supported and bribed to publish millions of pages of ludicrous puffs and lies at millions of dollars of expense, concerning quack concoctions in the preparation of which not a spark of therapeutic knowledge or scientific intellect ever had a finger of influence. What silly nonsense, again, for the American medical profession to support two-hundred or three-hundred so-called medical journals, when a half dozen or a dozen is all or more than could be supported with dignity and honesty. What criminal nonsense, once more, to have a hundred or more medical colleges, when a dozen would be all that could be decently endowed and carried on with high standards. The dozen would do a hundred times more good for the science of medicine than the hundred could by any possibility do. Lastly, chiefly as a result of this riotous multiplication of so-called medical colleges, we have a perfectly ludicrous excess of physicians half-starving and competing with each other all over the land. The proportion of physicians to the population is higher with us than with any other civilized people. While France finds one doctor enough to 2000 of the people; Germany, the home of scientific medicine, finds the proper proportion 1:3000; and Sweden, 1:7000. We in our suicidal intoxication run the proportion up to 1:600.

What malignant asinarian bacillus has got into our blood that makes us "whoop" everything to the sheerest and most debauching excess?

The Identity of the Streptococcus Pyogenes and the Streptococcus of Erysipelas.—From the first the close resemblance between the streptococcus pyogenes and the microörganism isolated by Fehleisen as the cause of erysipelas suggested the possible identity of the two; but for a long time the proof of actual demonstration was wanting. A number of cases, however, have been observed in which erysipelas has developed in the sequence of some local suppurative process, so that there is good reason to believe that the streptococcus pyogenes and the streptococcus of erysipelas are identical, differing, perhaps, in pathogenicity by reason of certain yet unknown intrinsic and extrinsic variations. We have referred to this subject upon a previous occasion (see The Medical News, September 9, 1893, p. 300), at the time citing an illustrative case. A parallel observation has recently been recorded by Reed (*Boston Med. and Surg. Journ.*, vol. cxxxi, No. 14, p. 339), who reports the case of a negro, fifty-four years old, dead of carcinoma of the liver, in which, upon post-mortem examination, the pleura covering the upper lobe of the left lung was dull, its surface being covered with a delicate layer of fibrin. Upon section the cut surface was uniformly grayish in color, and studded with numerous slightly projecting granulations. Cover-slips from this part of the lung showed abundant diplococci, many having distinct capsules, while in cultures from the hepatized lobe of the left lung diplococci also developed, together with the streptococcus pyogenes. The pathologist who conducted the autopsy sustained an abrasion of the skin over the left second metacarpo-phalangeal joint, and took no precautions toward avoiding septic infection of the wound during the further progress of the autopsy. Twenty-four hours later he began to experience a sense of languor and chilliness, together with some tenderness in the left axilla, which gradually increased. Finally, a distinct chill occurred, and was followed by fever and headache. The site of inoculation became reddened and a little swollen, and there was a slight escape of pus. Several days later a swelling appeared on the right side of the face near the nose, with

increase of fever, and a well-defined attack of erysipelas developed. The disease ran a usual course, spreading to the left side of the face and involving the ear. The pathologist had never had a previous attack of erysipelas. The time that elapsed between the local infection and the development of the erysipelas was four days.

Hospitals for the Tuberculous Poor.—We need here scarcely dilate upon the advantages to be derived from the establishment of hospitals for the care and treatment of the tuberculous. The experiences of the Brompton Hospital for Consumption and Diseases of the Chest, of the North London Hospital for Consumptives, of the Alexandria Hospital for Consumptive Children, of the Infirmary for Consumption and Diseases of the Chest, of the City of London Hospital for Diseases of the Chest, of the Royal National Hospital for Consumptives, Ventnor, Isle of Wight, afford abundant evidence of the good to be accomplished in this direction by effective organization and intelligent administration. In France, Germany, and Austria, also, plans are under consideration or in process of execution for the establishment of similar institutions, while a hospital for tuberculous patients is already projected for New York City. Our own Home for Consumptives at Chestnut Hill and the Rush Hospital for Consumptives are engaged in a laudable work, but the usefulness of both institutions is restricted by lack of funds and accommodations for large numbers, and more particularly on the part of those unable to contribute for their support and care. Thus it comes about that for the sake of the tuberculous poor, and with the aim of restricting the ravages and spread of a curable and preventable disease, there has arisen the necessity on the part of States and large cities of establishing hospitals for the reception and care of such tuberculous individuals as are unable to properly provide for themselves. City Councils will in a few days be petitioned to make an appropriation of $100,000 to build and equip such a special hospital in Philadelphia, and it is for the purpose of indorsing this petition that these lines are written. The prevention of tuberculosis is no longer a theory, but it has been effectively demonstrated to be a most earnest condition, and a more intimate knowledge of the cause and course of the disease has led to the recognition and adoption of measures calculated to restrict its ravages and prevent its spread. So desirable an end cannot be better promoted than by the establishment of such a hospital as that proposed.

Puerperal Neuritis.—With an expansion of our knowledge of the complications of the parturient and puerperal states, and with a growing familiarity with the lesions of the peripheral nerves, we have come to learn that the intoxications dependent upon infection through wounds and lacerations resulting in the course of childbirth may give rise to a multiple neuritis comparable to that of rheumatic, plumbic, alcoholic, or other like origin. A typical case of this kind was recently reported by Lountz (*Nouvelles Archives d'Obstétrique et de Gynécologie*, 1894, No. 9, p. 419) at a meeting of the Société de Neurologie, of Moscow. The patient was a primipara, twenty-four years old, who passed through pregnancy and labor without complication, the child dying, however, on the fifteenth day. Three weeks after the labor the woman presented swelling of the face, edema of the extremities, difficulty of deglutition, diplopia, pains in the extremities, and then numbness and weakness of the upper and lower members. Common sensibility was little affected, but the muscular sense was impaired. The knee-jerks and the elbow-jerks were abolished, and electric irritability was diminished. These symptoms were progressive for two weeks. To them were added arrhythmia of the heart, acceleration of the pulse and attacks of suffocation. The lower extremities became entirely paralyzed. By and by, however, the symptoms gradually ameliorated, except the paraplegia, which persisted for a long time. It is assumed that this depended upon a polyneuritis due to infection through a laceration of the perineum incurred during labor.

The Treatment of Typhoid Fever with Cold Baths.—As constant dropping wears away the hardest stone, so has the persistence of Brand and his disciples finally overcome the prejudices of the medical profession and established and forced to universal recognition the great therapeutic utility of cold bathing in the treatment of typhoid fever. With a somewhat natural unwillingness to adopt new methods specious technical objections were raised when once it was shown and admitted that the action of the bath was actually most beneficent and innocuous. Of these objections there remain the difficulty of bringing the necessary appliances and assistants to the bedside of patients in private practice and the fears of the family and the sensibilities of the patient. The last two may be considered as purely sentimental, and not substantial, and means have been devised to overcome the first. One of the simplest and most available devices for effectuating the end in view is that described by Burr (*Chicago Medical Recorder*, vol. vii, No. 4, p. 227). A rubber sheet, 2½ yards long by 1¼ yards wide, is slipped under the patient, and drawn up over his pillow, and its edges tucked up alongside of his body. A folding crib-like frame, 6 feet 2 inches long by 2 feet wide and 8 inches deep, is then unfolded and placed over the patient, resting upon the mattress and surrounding the patient, pillow, rubber sheet and all. The edges of the sheet are then drawn up over the top rail of the crib and down the outside to the lower rail, where it is hooked fast by means of rings attached near its edges with elastic tape. There is thus devised a light and perfect tub, with the patient resting undisturbed on his mattress and pillow. The accessories may be a couple of water-buckets, a ⅝ inch rubber hose, six or eight feet long, for a siphon, to which a spray nozzle may be attached, a sheep's-wool sponge of good size, and a bath thermometer.

Negro Physicians.—Apropros of our recent comment upon the urgent need of negro physicians, we are glad to be informed by Dr. Robert Reyburn that the Medical Department of Howard University of Washington, D. C., has endeavored to meet this necessity, almost half (including six women) of its 436 graduates during the twenty-six years of its existence having been negroes. The Dental Department of Howard University also has graduated 40, including 12 colored men, and 62 (36 colored) have received the degree of Doctor of Phar-

macy. The present medical class numbers 117, of whom 75 per cent. are colored. The Dental Department has 7 colored and 3 white students, and the class in pharmacy 13 students, all colored. It is further to the credit of Howard University to have been among the first to adopt a four-years' graded course of medical instruction. During the past year a training school for nurses has been established in connection with the university, with a current attendance of 77 pupils. The action of Howard University as to the admission of negroes is all the more praiseworthy in view of the practice of Southern medical schools of refusing them admission. Besides the two schools supported especially for the education of negroes by the Methodist Episcopal Church, alluded to in our issue of November 3, it is said that no medical school within 500 miles of New Orleans will allow the negro to matriculate.

The Dangers to which Physicians are Exposed in the performance of their professional duty, particularly when required to be out at night, are forcibly illustrated by a recent experience of Dr. A. M. Phelps, of New York. Returning home at about 5 o'clock in the morning, after having responded to a messenger call, he stopped at a public house for a sandwich, and while making payment was jostled by three men, one of whom abstracted a roll of bills from his pocket. With the aid of a policeman the fleeing culprit was caught and placed in durance. At the hearing before a justice the statement was made that Dr. Phelps presented "the appearance of being drunk and was under the influence of liquor." The policeman who made the charge was, however, unwilling to affix his signature to the written statement, which Dr. Phelps indignantly repudiates and which appears to have been entirely without foundation. Dr. Phelps' denial of the imputation against him is scarcely necessary, for in a question of veracity little credence would be given the word of a New York policeman.

"*The Rights, Liberties, Health and Happiness of Homes*" are everlastingly threatened in Massachusetts, so say flaring, glaring, flashing, furious circulars of "The National Constitutional Liberty League" of Boston, by the wicked renewed attempt to secure the passage of a very mild medical practice act by the State Legislature. These are the people that are aided by a Harvard Professor on the ground that medical discoveries often come from the so-called quack. As a study of the motives of the opponents of rational medicine these circulars are interesting; they have their lessons also as regards the mechanism of the methods, and they are a charming study for the observer of practical morbid psychology.

The Banquet-bribe.—Some time since, we believe, considerable amusement was furnished the world by the finding of pockets-full of free railway-passes in the possession of some ialistic enemy of the railroads. The laugh deepens into disgust when we contemplate the spectacle of the American medical editors banqueting at the expense of manufacturers of drugs and other articles used by the physician and advertised by the journals of the editors in question. If this is permissible why shouldn't the trussmen banquet the members of orthopedic congresses in the same way, the opticians attend to the ophthalmologists, etc., etc.? Surely the instrument-makers and the manufacturing pharmacists should "syndicate" their interests, and give all medical societies and congresses their banquets and hotel bills free!

Reform in Relieving Dependency, instead of encouraging it, is shown by the later experience of the Town of Waterbury, Conn., to be brought about by the revised system of administering public alms. This reform was stimulated by the report of a special committee, selections from which were published in THE MEDICAL NEWS of October 27. "Despite the hard times an annual saving of about $8000 is now being made, besides suppressing other gross abuses." Both giver and receiver are thus better off. As has been facetiously said of marriage, almsgiving is a game that two play at and neither wins.

SELECTION.

ATHLETICS.

As regards athletics, what is their aim? I believe what THE MEDICAL NEWS says is the aim: "To give every student a rounded, harmonious physical organization, not to train a dozen or two semi-officials to win matches."—PRESIDENT SCHURMAN, of Cornell University, in Annual Address to the Students, September 27, 1894.

SPECIAL ARTICLE.

REPORT OF THE MEDICAL NEWS.

A CLINICAL REPORT OF FIVE CASES OF DIPHTHERIA TREATED WITH THE ANTITOXIN.

BY WILLIAM M. WELCH, M.D.,
PHYSICIAN IN CHARGE OF THE MUNICIPAL HOSPITAL, PHILADELPHIA.

THROUGH the kindness of Dr. Frese I have had the opportunity to test the antitoxin in two cases of diphtheria in the Municipal Hospital. Dr. Frese received the material from the German Consul at Philadelphia, Mr. Meyer, who obtained the serum from the Institute of Prof. Behring, of Berlin. Besides my two resident physicians, Drs. Bemis and Carman, there were also present Drs. Frese and Kneass, both of the German Hospital, at the time the injections were made. Having selected two suitable cases of diphtheria in which the diagnosis was made from the clinical aspect of the cases, a bacteriologic examination was commenced by Dr. Kneass; but without waiting for the result of this examination, and thus losing valuable time, the serum was at once injected. Twenty-four hours later Dr. Kneass reported that Klebs-Loeffler bacilli were present in both cases. Dr. Bemis, my senior resident, closely observed the cases and made careful notes of their symptoms from time to time.

Subsequently, Dr. Louis Fischer, of New York, kindly visited the hospital and injected three additional patients with Behring's antitoxin, in the presence of several physicians. The clinical histories of all these cases are herewith presented:

CASE I.—F. N., two-and-one-half years old, white, female, of Russian descent, had been ill a little longer than forty-eight hours when admitted to the hospital, October 2d. On admission the tonsils were large, in-

flamed, and covered with an extensive exudate, dark-gray in color, and the breath was fetid. There was also involvement of both nares. The glands of the neck were somewhat enlarged, and the color of the face was pale and sallow. The temperature was 100.2°; the pulse, 124; the respiration, 24. Ten cubic centimeters of the antitoxin were injected at 6 P.M. (the day of admission). During the following twenty-four hours the temperature was recorded hourly, and varied between 99° and 101.4°; the pulse between 100 and 138 beats per minute; the respirations were from 16 to 28. The exudate in the fauces continued unchanged; there was free discharge from both nares; the greater part of the time this discharge consisted largely of blood. There was also oozing of blood from the mouth; the breath was fetid; the pallor was increasing and of a leaden hue. On November 4th the exudate in the fauces was unchanged; there was considerable epistaxis; the glands in the neck were enlarging; the temperature ranged from 98° to 100°; the pulse was 120; the respirations about 36. On November 5th the exudate in the fauces was not diminished; there was continued epistaxis; the breath was still fetid; the glands in the neck were even larger; there were some purpuric spots on the face; the color was very pale; prostration was great; the temperature ranged from 100.6° to 102.6°; the pulse was 140; the respirations, 28. At 1 P.M. of this day a dose of the stronger preparation of Aronson's antitoxin was injected by Dr. Louis Fischer, of New York. At 7 P.M. of the same day the condition of the patient was unchanged. For twenty-four hours after the first injection no other treatment was employed except the liberal use of milk and stimulants. Subsequently tincture of ferric chlorid and mercuric chlorid were given every two hours, and hydrogen dioxid applied locally every hour to the nares and fauces; strychnin sulphate, gr. $\frac{1}{100}$, was also given every six hours, continuing, of course, the free use of milk and whiskey.

On November 6th the exudate in the fauces was thinner, though still dark in color; blood was slowly dropping from the nose; the glands in the neck were somewhat diminished in size; the temperature, pulse, and respiration were unchanged. The pulse had considerable volume. Exhaustion had not increased, and the child took nourishment freely. On November 7th the exudate in fauces had increased since the previous day, and a few small purpuric spots remained on the face. Epistaxis had ceased, though the nose was somewhat moist from blood. A large ecchymosis on the thigh appeared where the first dose of antitoxin was injected, and the temperature was about the same, and the pulse was very weak indeed, just barely perceptible at the wrist, and could not be counted. The extremities were cold, the face pale and livid, and there was great drowsiness. The child was disinclined to take nourishment; there had been no bowel-movement for twenty-four hours. Tinct. ferri chloridi and hydrarg. chlor. corrosiv. were continued every two hours, and hydrogen dioxid was applied to the throat. Strych. sulph. gr., $\frac{1}{100}$, every four hours, and whiskey and milk were ordered at short intervals. At 12 midnight, $\frac{1}{60}$ gr. strychnin sulph. was given hypodermically.

On November 8th the exudate in the fauces had very much increased, covering not only the tonsils, uvula, and the anterior half-arches, but extending forward in front of the uvula. The exudate in the nares was also increasing; the glands in the neck were sensitive but not swollen. The temperature ranged between 97.6° and 99.8°; the pulse was just barely perceptible at the wrist; the heart's action was feeble, and the extremities were cold. In spite of this condition the child appeared bright and took milk fairly well. Strychnin sulph., gr. $\frac{1}{100}$, was ordered every three hours until two or three doses should be given.

At 5.20 A.M., 10 c.c. of Behring's antitoxin were injected. At 6.10 P.M., sulphuric ether, ℥xv, was given hypodermically, also at midnight gr. $\frac{1}{100}$ strychnin sulph. hypodermically. On November 9th the exudate in the fauces was very much diminished; the heart's action was very weak, the pulse just perceptible at the wrist, but could not be counted. The temperature was about the same. The expression of the child was bright, but it took nourishment less willingly. There had been no bleeding from the nose for three days. Injections of strychnin were continued, gr. $\frac{1}{100}$ every four hours, and artificial heat was applied to extremities. At 2 P.M., 10 c.c. of Behring's antitoxin were again injected.

On November 10th there was still considerable exudate in the fauces and also in the nares; the heart's action was feeble, and the pulse at the wrist was still almost imperceptible; the extremities were cold, and the child took nourishment and stimulants somewhat reluctantly. Three hypodermic injections of strychnin sulph. $\frac{1}{100}$ of a grain, were made in the last twenty-four hours. The child's expression, when awake, was quite bright. The heart-sounds were growing less and less audible, and death occurred at 10 P.M. from asthenia.

CASE II.—E. G. T., aged two years and eight months, white, female, born in Philadelphia, was admitted to the hospital October 2d, having a well-marked exudate on both tonsils and in one of the nasal cavities of less than forty-eight hours' standing. At 6.10 P.M. on the day of admission 10 c.c. of Behring's antitoxin were injected. During the following twenty-four hours the temperature varied between 99° and 100.8°, being about the same as before the injection was administered; the pulse-rate was between 120 and 135; the respirations were from 20 to 30. The exudate on the tonsils seemed unchanged, as also did that in the nose, except that the discharge from the nares was slightly less. On November 4th the exudate in the fauces and nares had neither extended nor diminished; the temperature was unchanged; the pulse-rate and the respirations were about the same. On November 5th the exudate in the fauces and nares was unchanged, except that both nares were now involved; the glands in the neck were only very slightly swollen; the general condition of the child remained about the same as when the injection was given, though possibly there was slight improvement. The child received the same internal and local treatment as the previous case, and took nourishment freely.

On November 6th there was but little change in the exudate in the fauces; the temperature had risen to 101.6°, and the rash of scarlatina had appeared. A sister of this child had developed scarlet fever two days previously. On November 7th the exudate was diminishing both in the fauces and nares; the temperature ranged between 100.8° and 101.8°; the pulse was 120. On November 8th the exudate in the fauces had disappeared;

in the nose it was dry and much less distinct; the temperature was 101.° On November 9th there was no exudate in the fauces, and very little in the nose. The rash of scarlet fever was just barely characteristic. The child's general condition was much improved, and she had quite recovered from the diphtheria. The attack of scarlatina was very mild.

On November 12th gradual improvement was noted, and there was no exudate in the fauces, but there was still a very little in one nasal cavity. The temperature was about normal, and, from the time the scarlet fever began, it had not been higher than 101.8°. The pulse was 120. Desquamation commenced on this date. The child took nourishment well.

Case III.—A. J., thirteen years of age, colored, was admitted November 3d, having been ill four days. The exudate in the fauces covered the tonsils, the anterior half-arches, and the uvula completely. The temperature was 101.6°, the pulse 100, the respiration 28. There was only very slight enlargement of the glands of the neck. There was no nasal involvement. Tinct. ferri chloridi and hydrarg. chlor. corros. were given internally every two hours, and hydrogen dioxid was applied locally every two hours. On November 4th the condition of the fauces remained unchanged; the temperature was 99.2°, the pulse 86, the respiration 25. A 1 per cent. solution of formalin was applied to the throat every two hours alternately with the hydrogen dioxid. On November 5th the exudate in the fauces remained the same; there was no increase of swelling of the glands of the neck; the temperature was 99°, the pulse 88, the respiration 20. There was very little exhaustion, and the child took nourishment well. At 1.10 P.M. Dr. Fischer, of New York, injected 10 c.c. of Behring's antitoxin (a bacteriologic examination was made by Dr. Kyle, and typical bacilli were found). Following this the temperature ranged between 100° and 100.6°. On November 6th the exudate in the fauces continued much the same, though somewhat thinner on the uvula. The temperature ranged from 98.4° and 98.8° to 100.8°; the pulse was about 90, the respiration about 20. The same internal and local treatment was continued; the child took nourishment and stimulants freely. On November 7th the exudate in the fauces had greatly diminished; the temperature was 99.4°, the pulse ranged from 80 to 90, the respiration was 18; nourishment was taken as usual, and the patient slept well. On November 8th the exudate was diminishing rapidly, the swelling of the uvula was much less, and exhaustion was not great. On November 9th the exudate was much thinner and had disappeared in part, though considerable still remained. The same local and internal treatment was continued. The patient was now doing very well, and was placed on the regular house-diet.

On November 10th the general condition continued favorable; the fauces were quite free from exudate, but a little still remained on the uvula. Albumin continued in the urine in the same proportion.

On November 11th there was no exudate in the fauces except a little on the uvula; the temperature and pulse were about normal; the child took nourishment well, and strength was increasing. On November 12th there was a mere trace of exudation on the uvula; the temperature ranged between 98° and 100°; the pulse and respiration were about normal. The child was anxious to sit up.

Case IV.—B. M., white, male, aged five years, was admitted October 18th, on the third day of the disease. The exudate in the fauces was very great, covering the tonsils, the uvula, the anterior half-arches, and extending on the roof of the mouth in front of the uvula; there was also nasal involvement. The glands of the neck were enlarged. On October 19th the child was bleeding from the nose and mouth. On November 20th the exudate was unchanged, and there were croupy symptoms. On October 23d the general condition was about the same; the albumin on this date was about 60 per cent. of the bulk of the urine. The temperature had been running from 101° to 102°, the pulse from 100 to 118, the respiration from 22 to 26. On October 25th the exudate had diminished and epistaxis had ceased. The temperature was about 99°, the pulse 100, and the albumin was only 10 per cent by bulk. On October 30th the fauces were almost free from exudate; no albumin was found in the urine; the temperature was about normal, sometimes subnormal; the pulse ranged from 96 to 100. There were marked evidences of toxemia; there was great pallor and weak heart-action. On November 5th the temperature had been ranging from 100° to 102.6°; there was no albumin in the urine; the pulse was from 98 to 112. There was a mere trace of exudate in the fauces, and still some nasal involvement; the pallor and prostration continued; there was a feeble pulse, and the cervical glands were still enlarged. There was a herpetic eruption on the lips. At 1.30 P.M. Dr. Fischer, of New York, injected 10 c.c. of Behring's antitoxin, the Klebs-Loeffler bacteria having been found to be present by Dr. Kyle. On November 9th the patient was gradually improving; the temperature was from 98.6° to 100°; the pulse from 90 to 120; no exudate existed in the fauces, and that in the nares was gradually growing less; the color was also improving, and the child took nourishment well. The general condition was much improved.

On November 12th the fauces were entirely free from exudate, and only a very little remained in the nares; the temperature was 98.6°. No albumin had been found in the urine for several days past. The child was constantly improving.

Case V.—A white male, eight years of age, was admitted November 9th, having been ill seven days. The exudate in the fauces covered the tonsils, the anterior half-arches, and the uvula, and extended a short distance on the roof of the mouth in front of the uvula; both nares were also involved. The breath was offensive; the glands on both sides of the neck were considerably enlarged, and the skin over the swollen glands was red. The temperature was 102.8°, the pulse 136, the respiration 36. Ten c.c. of Behring's antitoxin were injected under the skin on the back at 12 o'clock M. by Dr. Fischer, of New York. The patient was at this time taking internally about 6 minims tinct. ferri chlorid. and $\frac{1}{3\frac{1}{2}}$ gr. of mercuric chlorid every two hours; locally, hydrogen dioxid undiluted, alternately with a one per cent. solution of of formalin, was applied every hour, whiskey ℥ij every two hours, and milk *ad libitum*. On November 10th the temperature was 100°, the pulse 120, the respiration 32. The exudate in the fauces remained about the same, ex-

cept that it presented the appearance of peeling off in some places; in the nares the exudate was unchanged; the glandular swelling also remained about the same. The child at times was drowsy, and at other times restless.

On November 11th the exudate in the fauces and nares remained about the same; it was still dark in color, and the breath was offensive. The glandular swelling had not increased. The temperature was about 100°, the pulse 128, the respiration 32. Albumin was found in the urine in the proportion of about one-tenth part of the bulk of the urine. The child took nourishment well.

On November 12th there was very little, if any, change in the exudate in the fauces and nares; at times there was slight epistaxis. The temperature was 99.8°, the pulse 116, the respiration 26. There was no increase of the glandular enlargement; exhaustion was not great; and the child continued to take nourishment and to rest well.

I append the report kindly furnished by Dr. Kyle, of the bacteriologic investigation made by him.

BACTERIOLOGIC REPORT.

By D. BRADEN KYLE, M.D.

In the examination of the four cases of diphtheria injected with the antitoxin by Dr. Louis Fischer, of New York, the bacillus of diphtheria (the Klebs-Loeffler bacillus) was found in each case, the bacteriologic diagnosis agreeing with the clinical diagnosis, as made by Dr. Welch. One case was examined by Dr. W. M. L. Coplin, and the other three by myself. A complete bacteriologic report will appear in the January issue of the *American Journal of the Medical Sciences* in connection with an article to be contributed by Dr. Fischer.

It may be of interest to add a brief epitomization of the laboratory-technique of the preparation of the culture-medium, etc.

The bacillus of diphtheria grows best on blood-serum prepared after the method of Loeffler. A wide-mouthed jar, with a ground-glass stopper, which has been thoroughly sterilized, is taken to the slaughter-house and filled with freshly-shed blood of the ox or sheep, young animals being preferable. The skin of the neck of the animal to be killed is shaved, washed with soap and water and a brush, then with alcohol or ether, or a 1 to 1000 solution of mercuric chlorid may be used if the skin is again washed thoroughly with boiled water. One of the great vessels of the neck, preferably an artery, is then opened, and the blood is allowed to spurt directly into the prepared receptacle. The edge of the jar is then cleansed and the jar is sealed by means of the ground-glass stopper, and set aside until the blood has clotted firmly. The jar is then removed to the laboratory and placed in an ice-chest for twenty-four hours. It should be examined every few hours, and if the clot tends to adhere to the sides of the jar it should be loosened by means of a sterilized glass rod. While the serum is collecting test-tubes may be cleansed and sterilized. Two sizes of tubes are needed. A tube four inches long and two-thirds of an inch in diameter may be used for the serum, while a tube six inches long and three-quarters of an inch in diameter is used for the cotton swab. The tubes are carefully washed and dried, then plugged with cotton so wrapped that its surface will be smooth, and when withdrawn from the test-tube will not spread out, but remain firm.

The tubes to be used for the swabs are prepared as follows: A stiff steel rod (an ordinary knitting-needle may be used) is passed through a plug of smaller diameter than the tube. The plug is wrapped so as to firmly hold the steel rod, which is passed through layers of cotton until the plug will tightly fit the caliber of the tube. The end of the rod which is placed in the tube is then wrapped with a small piece of cotton, which should be loose and fluffy at the end, but tightly adherent further up the rod. This arrangement can be effected by frilling the cotton and shortening the fine fibers well up on the rod and wrapping firmly toward the end. The swab is now introduced into the tube, which is placed in an incubator and exposed to dry heat at a temperature of 150° C. for at least one hour. This procedure should be repeated two hours before using the tube. The nutrient beef-broth which is mixed with the serum is prepared as follows: One pound of finely chopped lean beef is placed in one liter of water and allowed to stand for twelve hours in an ice-chest. After twelve hours the meat and water are placed in cheese-cloth or a towel and the fluid pressed out. The fluid thus obtained should be heated and again filtered through a towel, and the amount brought up to one liter by the addition of distilled water; to this is added 1 per cent. of peptone, 1 per cent. of glucose, and 0.5 per cent. of common salt. If the fluid has an acid reaction, a few drops of a saturated solution of sodium bicarbonate may be added. The mixture is then boiled for half an hour and filtered through absorbent cotton into sterilized flasks; then sterilized for half an hour. The blood-serum is now siphoned off through a sterilized glass tube and mixed with the nutrient beef-broth in the proportion of 3 to 1. The serum is poured into the sterilized test-tubes by means of a sterilized pipet, which should be inserted to the end of the test-tube so as to avoid the formation of air-bubbles and to secure a perfectly even surface. Two c.c. of the serum are sufficient for each tube. The tubes are now placed in an incubator and kept at a temperature just below the boiling-point, care being taken to have them inclined in order to obtain a wide surface for the growth of the inoculated germs. Great care must be taken that the serum does not boil.

If kept for several hours at a temperature just below the boiling-point, and if the process is repeated after twelve hours, the serum will remain sterile. The serum thus prepared is quite clear and firm. The tubes can be placed in glass jars, sealed by means of a clamp-top, and kept for months.

The swab for obtaining the membrane for inoculating the tubes is preferable to the inoculating-needle, as the infected areas can be quickly passed over, and the secretions are readily gathered in the meshes of the cotton. Besides, the operator is not exposed so long in front of the patient.

The serum-tube may be brought to the bedside and inoculated at once after the swabbing of the throat, or the swab can be returned to the sterile tube and taken to the laboratory, and the inoculation made there, and the serum-tube placed at once in the incubator.

A few words as to the method of obtaining the infec-

tive material from the throat and of inoculating the tubes may not be amiss. With the patient in a strong light, the operator puts one hand on the patient's head, while with the other he holds the tube containing the serum. An assistant depresses the tongue, and with the other hand holds the tube containing the swab. The operator removes the swab and rubs it firmly but gently against any visible membrane, either on the tonsils, pharynx, or uvula. The swab can now either be placed back in its tube, and the extending cotton singed and the whole be taken to the laboratory, or the serum-tube can be inoculated at once. After the swab has been used and the inoculation made the cotton should be burned, while the steel rod can be again sterilized and used. Should no false membrane be visible the swab should be passed over the reddened mucous membrane. Should false membrane be present in the nose, inoculations should be made from it also. Inoculations should not be made after the application of disinfectants to the throat.

After the inoculation has been made the serum-tubes are placed in the incubator and kept at a temperature of 37° C., the optimum temperature of the Klebs-Loeffler bacillus, for from ten to sixteen hours. On inspection the smooth surface of the serum will be dotted with minute colonies which are barely visible, but by slanting the tube and holding so as to look along the level of the flat surface small pin-point projections can be seen. Spreads and stains should be made at once. Care must be taken not to spread the material too thickly on the cover-glass. This can be avoided by first placing a tiny drop of sterilized water on the cover-glass. The platinum needle is then introduced into the tube and swept over the colonies, and the bacteria adherent to the needle are washed off in the drop of water previously placed on the cover-glass and evenly distributed over the entire surface.

The spread is then allowed to dry in the air, and before being placed in the stain is fixed by being passed quickly through the flame of an alcohol lamp. The best stain is Loeffler's alkaline methylene-blue. The cover-glass is left in this stain without heating for from ten to fifteen minutes; it is then rinsed with clear water, dried, and mounted in Canada balsam. The microscopic examination by means of the one-twelfth oil immersion will disclose what at first appears to be a mixed culture. The bacillus of diphtheria assumes many shapes and forms, yet the refractive bodies and the rounded ends are characteristic.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Section on Pediatrics.

STATED MEETING, NOV. 8, 1894.

JOSEPH E. WITTERS, M.D., *Chairman.*

DR. A. CAMPBELL WHITE read a paper entitled "Antitoxin Treatment of Diphtheria, Based upon a Series of Cases Treated at the Willard Parker Hospital." He said that many efforts had been made to confer immunity from infectious diseases ever since Jenner demonstrated that this could be done in the case of smallpox. There was, however, some danger in inoculating persons with attenuated bacilli, and for this reason certain investigators had been following a somewhat different line of research. They had found that by first rendering an animal immune, and then injecting the serum of this animal into a human being, the latter could also be made immune to that particular disease, without the danger attending the other method. By this plan of treatment, the person so treated was not only spared a severe illness following the inoculation, but by properly regulating the dose of the serum given the treatment could be adapted to an infection of greater or less severity. These facts are the foundation of the new antitoxin-treatment of diphtheria. Behring has found that not only is an individual rendered immune by an injection of diphtheria-antitoxin, but if the diphtheria has already developed its course will be promptly checked. The serum is obtained from the larger animals, particularly the horse, and the injections necessary to immunize the animal may have to be continued for several months. The only reaction following the injection of this serum into the human subject is that which may be attributed to the introduction into the system of the serum from the lower animals. The strength of each sample of serum is determined by noting its effect in certain quantities on guinea-pigs of a given weight.

In the Willard Parker Hospital the mortality among adults suffering from diphtheria has been less than 3 per cent.; for children between the ages of five and sixteen years, 13.6 per cent.; and for children under five years, 42.7 per cent. Patients dying of diphtheria from the intoxication of the disease, from extension of the membrane, or from heart-failure, do so usually within the first ten days; those dying later than this, usually succumb to pneumonia or paralysis. Among one-hundred-and-seventy fatal cases observed in the hospital during the past year, one-hundred-and-thirty-five deaths occurred within five days after admission; seventeen within ten days, and eighteen after this time. Of these eighteen, nine died of heart-failure, two of septic infection, one of meningitis, and six of pneumonia. The practice had been to keep all diphtheria-patients in a warm room, in the recumbent position, and on a fluid diet; the nose and throat were irrigated with normal salt-solution, and internally large doses of iron were given and stimulants as indicated. In the laryngeal cases the main dependence had been placed on sublimations of calomel and the use of moist heat.

Recently twenty especially severe cases of diphtheria were selected for the antitoxin treatment, no other treatment being employed with the exception of a single irrigation of the nose and throat with the salt-solution just after admission to the hospital. The average age of the patients had been three-and-a-half years, and the average dose of the antitoxin, 11.3 cm. Fourteen in this series had also laryngeal diphtheria; four of these were intubated, and one tracheotomized. One intubation-case, in a child of three years, died on the twenty-fourth day of lobar pneumonia. The tracheotomy-case unexpectedly developed a broncho-pneumonia from exposure to cold, on the thirty-fourth day. Of the six cases in which there was no laryngeal complication, only one died, and that was a child that was apparently well and on the road to convalescence from the diphtheria when it developed scarlatina. In these latter

cases, then, the mortality was 16.6 per cent., while in the laryngeal cases, instead of the usual mortality-rate of 50 per cent. or over, it was 28.5 per cent. The injections of the antitoxin caused no local irritation or reaction of any kind, with the exception of an occasional slight eruption. The temperature was not markedly affected, but the pulse was decidedly improved after the first few hours. The antitoxin treatment did not hasten the disappearance of the diphtheria-bacilli, and it did not markedly hasten the disappearance of the membrane.

Twelve other cases, all under five years of age, were treated with the weaker "immunization-solution" of Aronson, and among these the mortality was 25 per cent.

Statistics compiled from various sources show that out of a total of 486 children, 116 died, or a mortality of 23.8 per cent. in a class of cases in which before the introduction of the antitoxin-treatment the mortality had been 60 per cent.

In conclusion the author expressed the opinion that in addition to conferring immunity from diphtheria for a certain length of time, the antitoxin was a specific for this disease, and was capable of averting death from absorption of its toxins.

Dr. Herman M. Biggs said that during the past summer he had had exceptional opportunities in Berlin for studying this new treatment of diphtheria. It should be remembered that this was not a recent discovery, but the result of years of scientific research. He had been particularly struck with the fact that all of the eminent bacteriologists connected with the Institute for Infectious Diseases in Berlin, after carefully following 500 cases treated with the antitoxin, were unanimous in expressing the opinion that this treatment has already passed beyond the experimental stage. Bacteriology has shown that the constitutional disturbances exhibited in the various contagious diseases are due to bacterial products, and it has been demonstrated by experiment that immunity can be produced artificially by inoculation with these chemic products of the microörganisms. It has also been demonstrated that this immunity is the result of the development of something that neutralizes the chemic products of the bacteria. The strength of these products in diphtheria can be measured biologically by their effect on animals. An antitoxin may be developed in the circulation by inoculation with these chemic products of the microörganisms, and the amount of the antitoxin can be very greatly increased by gradually increasing the quantity of the toxin injected. Clinical experience has shown that the dose of the antitoxin-solution must be adjusted to the age and weight of the patient as well as to the severity of the infection.

Dr. William Hallock Park said that it had been shown by experiment that after the antitoxin had been injected and the power of the toxin neutralized, both the antitoxin and the toxin were still present. If the inoculation of the trachea of an animal with diphtheria be immediately followed by an injection of the antitoxin-solution, the development of the characteristics of diphtheria will be prevented, but if the injection of the antitoxin were delayed somewhat longer, a larger quantity would have to be employed in order to prevent the development of the diphtheria. It does not, however, affect the diphtheria-bacilli: they may be grown on cultures that have been impregnated with the antitoxin. Dr. Park has been able to collect 1180 cases of diphtheria treated by the antitoxin with a mortality of only 20 per cent.

Dr. George F. Shrady said he could recall the time when diphtheria was a new disease in New York City, and when the mortality was as high as 90 per cent. He had followed the cases undergoing the antitoxin-treatment in the Willard Parker Hospital, and he could heartily indorse the method.

Dr. W. P. Northrup said that it should be remembered that there had been no severe epidemic of diphtheria in New York City since the beginning of last July, and that on this account deductions from the few cases so far reported should be made with great caution. He thought the treatment was likely to render the greatest service in fulminating cases that occasionally occur.

Dr. Louis Fischer said that he had spent the whole summer with Professor Baginsky studying this treatment. The practice in Berlin had been to employ the injections in every case proved by bacteriologic examination to be true diphtheria. In his own cases he had not usually observed any change in the local or general condition until about forty-eight hours after the injection of the antitoxin.

Dr. H. W. Berg remarked that the difficulty in estimating the true value of this treatment lay in the fact that we had no way of determining at the outset whether or not a given case of diphtheria was specially severe.

Dr. J. Lewis Smith said he would like to know if the antitoxin-treatment had any beneficial effect on pseudo-diphtheria.

The Chairman replied that Aronson had stated that it had no favorable influence on cases of mixed infection. The ordinary mortality-rate of diphtheria in New York City was not much over 25 per cent. The very fact that most of the recent cases of diphtheria had been very mild, so that many recovered without any treatment, should make us especially cautious about drawing any positive conclusions from the cases presented. This could only be done after the treatment had been on trial for a long time and in the hands of many physicians.

Dr. White, in closing the discussion, said that a sufficient guarantee of the severity of the cases that he had submitted to the antitoxin-treatment was to be found in the fact that in fourteen of the twenty cases the disease involved the larynx, and that the patients, with one exception, were all under five years of age. The ordinary mortality in our hospitals in this class of cases was 40 or 50 per cent., and this had been reduced to 25 per cent. in the cases treated with the antitoxin.

NEWS ITEMS.

Special Course in Bacteriology.—A course of ten lectures on bacteria, by Dr. M. V. Ball, at the Academy of Natural Sciences, Nineteenth and Race Streets, on Fridays at 3 P.M., was begun on November 9th. Medical students and others interested are invited to attend.

Muscular Anomalies and Squint.—A series of lectures and demonstrations, together with clinical work, will constitute a special course upon muscular anomalies and

squint, to be given at the Philadelphia Polyclinic during the week commencing November 19, 1894.

The Value of State Medical Examinations.—At the September examinations for State medical license by the board representing the Medical Society of the State of New York, the number of candidates was seventy-six, of whom fifty-one were successful and twenty-five unsuccessful.

The Statue of Dr. J. Marion Sims.—By an error it was stated in THE NEWS of November 3 that the unveiling of the statue to Dr. Sims took place at Brooklyn instead of at Bryant Park, New York City. It was also said that the statue was the first of a physician erected, while the statement intended was that it was the first statue of a physician erected in this country.

Meetings of Philadelphia Medical Societies:

	Meets.	Next meeting.
Academy of Surgery,	1st Monday of month, Oct.—June.	Dec. 3
College of Physicians,	1st Wednesday of month, Sept.—June.	Dec. 5
Section of Ophthalmology,	3d Tuesday of month, Sept.—May.	Nov. 20
Section of Orthopedic Surgery,	3d Friday of month, Oct.—April.	Dec. 21
Section of Otology,	1st Tuesday of month, Oct.—May,	Dec. 4
Section of Surgery,	2d Friday of month, Oct.—May.	Dec. 14
County Medical Society,	2d and 4th Wednesdays of month, Sept.—June.	Nov. 28
Neurological Society,	4th Monday of month, Oct.—April.	Nov. 26
Obstetrical Society,	1st Thursday of month, Sept.—June.	Dec. 6
Pathological Society,	2d and 4th Thursdays of month, Sept.—June.	Nov. 22

BOOKS AND PAMPHLETS RECEIVED.

Puerperal Hysteria (Insanity?). By W. P. Manton, M.D. Reprinted from the Journal of the American Medical Association, 1892.

A Contribution to the Surgical Pathology of the Gall-Bladder and Ducts. By Walter P. Manton, M.D. Reprinted from the American Gynecological Journal, 1893.

State Care for Epileptics. By J. B. Maxwell, M.D. Reprinted from the North American Practitioner, 1893.

Neuratrophia, Neurasthenia, and Neuriatria. By C. H. Hughes, M.D. Reprinted from the Alienist and Neurologist, 1894.

Buffalo Academy of Medicine. Section on General Medicine. Report of the Committee on Tuberculosis. Reprinted from the Buffalo Medical and Surgical Journal, 1894.

Two Cases of Brain-Tumor. By Clarence Bartlett, M.D., and W. B. Van Lennep, A.M., M.D. Reprinted from the Hahnemannian Monthly, 1894.

Before the Committee on Interstate and Foreign Commerce of the House of Representatives in the Matter of Establishing a Bureau of Public Health in the Department of the Interior. Address of the Supervising Surgeon-General, U. S. Marine-Hospital Service, May 18, 1894. Washington: Government Printing Office, 1894.

Enormous Oval Hemorrhoid Encircling the Anus; Whitehead's Operation; Entire Cure. By W. W. Keen, M.D. Reprinted from the Therapeutic Gazette, 1894.

Operation Wounds of the Thoracic Duct in the Neck: with a Résumé of the Two Prior Recorded Cases and Two Additional Cases. By W. W. Keen, M.D. Pamphlet. Philadelphia, 1894.

Removal of the Gasserian Ganglion as the Last of Fourteen Operations in Thirteen Years for Tic Douloureux. By W. W. Keen, M.D., and John K. Mitchell, M.D. Reprinted from the Transactions of the Philadelphia County Medical Society, 1894.

Ligation of the Common and External Carotid Arteries and the Jugular Vein for Arterio-venous Aneurism of the Internal Carotid and Jugular, with Division of the Optic Nerve on the Opposite Side, the Result of a Gunshot Wound. By W. W. Keen, M.D. Pamphlet. Philadelphia, 1894.

Wisconsin College of Physicians and Surgeons, Milwaukee, Wis. Circular of Information for 1894–95.

Transactions of the Indiana State Medical Society, 1893. Forty-fourth Annual Session. Indianapolis: Wm. B. Burford, Printer, 1893.

A Clinical Investigation to Determine the Value of Corrosive Sublimate and the Gray Oil Administered Hypodermatically in the Treatment of Syphilis. By Orville Horwitz, B.S., M.D. Reprinted from the Therapeutic Gazette. 1894.

Non Nocere. By A. Jacobi, M.D. Reprinted from the Medical Record, 1894.

Relation of the Kindergarten to the Public School. By E. Stuver, M.Sc., M.D. Pamphlet. Rawlins, Wyo., 1894.

Differential Diagnosis of Nephritis. By Emmet L. Smith, M.D. Reprinted from the Medical Century, 1894.

The Result of a Pretended Operation upon a Patient Suffering from a Delusion of a Sexual Character, Operation for the Cure of Epispadias: Case of Perineal Section for Traumatic Stricture, with a Description of a New Form of a Perineal Staff; New Method of Treating a Resilient and Nodular Stricture of the Penile Portion of the Urethra. By Orville Horwitz, B.S., M.D. Reprinted from International Clinics, vol. i, fourth series.

Sur la Cure Radicale des Hernies, Série Nouvelle de 116 Cas Complétant un Total de 391 Cas. Par le Dr. Just Lucas Championnière. Extrait du Journal de Médecine et de Chirurgie Pratiques, 1893.

Functional Constipation. By W. Blair Stewart, A.M., M.D. Reprinted from the New England Medical Monthly, 1894.

Union Mission Hospital Reports. Philadelphia, May, 1894.

A Suggestion of an Operation to Correct Astigmatism. By W. H. Bates, M.D. Reprinted from the Archives of Ophthalmology, 1894.

Macrobiotic, or Our Diseases and Our Remedies. By Julius Hensel. Translated by Prof. Louis H. Tafel. From the second revised German edition. Philadelphia: Published by Boericke & Tafel.

The Sympathetic Nervous System. By W. Metcalf, M.D. Reprinted from the Physician and Surgeon, 1894.

Chaucer's "Doctour of Physick." Reprinted from the Bristol Medico-Chirurgical Journal, 1894.

Annual Reports of the Managers and Officers of the New Jersey State Hospitals for the Year ending October 31, 1893. Trenton, N. J.: The John L. Murphy Printing Co., Printers, 1893.

On Double Consciousness. By Alfred Binet. The Religious Science Library. Chicago: The Open Court Publishing Co., 1894.

Apex Catarrh. By Howard S. Straight, A.M., M.D. Reprinted from the Medical Record, 1894.

An Act to Regulate the Practice of Medicine, and to Create a State Board of Examiners in Louisiana. Monroe: The Monroe Bulletin Print, 1894.

Efficient Spinal Support in Pott's Disease, and a New Method for Locating the Bullet in Gunshot Fractures of the Skull. By W. V. Morgan, M.D. Reprinted from the Indiana Medical Journal, 1894.

The Colorado School of Medicine. Medical Department of the University of Colorado, Boulder, 1894–95. Denver, Col.: News Printing Co., 1894.

Index-Catalogue of the Library of the Surgeon-General's Office, U. S. Army. Authors and Subjects. Vol. xv, Universidad-Vzoroff. Washington: Government Printing Office, 1894.

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ORIGINAL ARTICLES.

POPULAR ERRORS CONCERNING INSANITY.

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INSANITY, though technically held to be a medical subject, has a large border-line of questions concerning its actuality, its essential elements and limiting boundaries, that belong more properly to ordinary or social philosophy; such aspects must be frequently met by legal decisions, and judgments concerning them must be made by citizens having social and legal relations of many kinds with the border-line cases. It is as a question of popular interest, and one deserving of vastly more popular, intelligent thought, that the subject is here presented.

Such consideration is needed to bring more clearness, more rational action in legislation, more of reasonable and less of the blind, perverted malignant criticism of asylums for the insane by the ordinary well-informed classes of society, including its lawyers, ministers, merchants, and most intelligent citizens generally.

And first, we find, oddly enough, that no one is so ignorant or knows so little of insanity that he does not make impromptu very positive judgments in regard to it. Living with and among the insane of a large asylum population we are frequently told that "this one surely is not insane;" that we "ought to let that one out;" that they "know of several cases who are railroaded into an asylum;" that "we have some here who ought not to be here," etc. So coolly and decidedly are we told these things right on our own threshold that after a time we shrink from the long argument which likely, after all, only half convinces, and we are prone to content ourselves with the decided protest, or else at times ignore the reflection altogether, and smile at the thought of how coolly our years of experience and long contact with this special insane case under question go for naught before the five-minute examination. The slight regard in which expert testimony is held is shown no better than by the total disregard of the testimony of physicians expert in judging of insanity in the Prendergast trial. Although quite uniform, good, and unwavering, it was coolly disregarded and set aside by lawyers, by jury, and by newspaper criticism.

A second way in which confusion of thought shows itself is proved by the suspicions of the most unreasonable character that run through the papers and through the popular gossiping conversation at the first misfortune at an asylum. By inference, at least, it is judged that each asylum is kept and controlled by *men of criminal intent*, while lurid pictures of daily happenings are fully and eagerly accredited. Like the preceding criticisms, this contumely has to be accepted coolly and calmly by the officers and employés as part of the *impedimenta* of the business, unless, forsooth, these would in sheer disgust give up their positions.

It is impossible to fight such criticism, and it will only disappear as the future will, by the gradual withdrawal of the seclusion-element, and by the slow spread of intelligence concerning the class, dissipate such clouds of skepticism. Of course also here, as in all lines of work, a steady progress in intelligent care and a true hospital-spirit of nursing will avoid to a more perfect extent the occasional happenings which furnish a basis for such criticism.

We believe that there are some reasons for this popular distrust and misjudgment, and also for the popular unbelief and mistrust of experts and expert testimony. We would outline the first point leading toward clearer ideas in this form:

1. *Insane people are more or less reasonable people.* That is to say, they both use their reasoning powers, and they use them moreover in a reasonable manner. Although few have ever formulated the saying, "insane people know nothing," yet nearly all have made judgments, or have read and accepted judgments having this as its practical basis. The arguments of the prosecution concerning the insanity of Prendergast, accused of the murder of Mayor Harrison of Chicago, all had this as their fundamental error. It was found through newspapers, in conversation, and everywhere. It was argued that because *he was afraid of death he must be sane;* because *he could remember accurately he must be sane;* because *he could plan ahead he must be sane.* This was the drift of the arguments that decided his conviction of murder upon the ground of sanity. But insane people are more or less capable and responsible in business. Peterson reports the case of a switchman doing regular work. The trouble is that every man whose mind works untruly or wrongly in any *one*

discoverable way is denominated insane, though much of ability, intelligence, and responsible action still remain in other ways.

It is evident upon consideration, however, to the most heedless mind that such a one is vastly different from one in a dull, stupid condition of terminal dementia. The first point toward clearing up the fog about the question, then, could be restated about as follows: *In insane people varying degrees of intelligence and ability still remain.*

2. Our second point is to be inferred from the preceding. It is that *insane people grade from very slight mental defects toward the profoundly dull, the overpoweringly depressed, the wildly exalted, or the weakly silly.* This, again, would seem an easy, almost self-proved statement, but as it is practically often ignored, it is needful to make it very prominent here. One person is able to carry on a clear conversation, perceive clearly, reason accurately, to do good business, or what not; while another is too stupid to speak, or too overwhelmed by acute mania, or by the oppression of a melancholia, to have much if any consciousness of what is going on about him. The contrast is great, yet to *both* of these extreme cases is applied in common *the name "insane."* The inference is so clear as seemingly to need little further explanation. The gradual line of increasing ability in a series of cases can be made out clearly in any large hospital for the insane. Ought the man at the intelligent end of the series to be ignored as a man of likes and dislikes, as a man of duties and responsibilities, as much as the man at the other end of the series necessarily is? The answer seems so evident as to hardly need framing.

3. *Not all insanities technically such ought to receive the name insane.* For example, a person in the process of getting drunk goes through various phases of mental impairment or insanity, yet because of its transient character it is rarely so named. If, however, the conditions of mind in many intoxications were *permanent*, it would be easy and just to call such a person insane.

So, too, in the delirium of fevers, the person is practically insane. But the state being transient and of transient causation, the name is not applied. Many drugs produce transient mental perversions to be considered in the same way. From blows on the head, from surgical operations about the head, from gross brain-wounds, similar impairments of a transient nature are noted. Among more chronic troubles the mental impairments of early epilepsy are frequently asserted by good authorities as not to be insanity. The perversions of chronic inebriety are by some spoken of as insanity, by others not. Reform-schools and prisons always hold some cases to whose mental state it is doubtful whether the name insanity would be applicable or not. The fundamental endowment of some people is occasionally so lacking that some of the more critical will call them insane. A little thought, therefore, will show that the word "insanity" is applied to a long, graded series of cases which vary to an astonishing degree among themselves; and, moreover, that the state of the person must be *permanent* enough and *obtrusive* enough in the public mind to make the name "insanity" seem popularly applicable.

4. *The change from sanity to insanity is not instantaneous.*

Even as we watch the slow recovery of an insane person as he gradually discards one after the other of the mental perversions which have crowded his mind, so we can watch the gradual descent along similiar lines. It is only occasionally that a single day brings on the state. Usually weeks, even years, can be included by careful questioning. The practical outcome of bluntly stating the foregoing is manifold.

Prominently it will be seen that during this descent people are doing acts criminal, civil or social, whose responsibility may be afterward called in question. Secondly, this descent may be stayed in its progress at almost any stage, thus rendering less clear the decision of the mental state. For it is easy to throw distrust over the early acts of one who is found *subsequently to be profoundly insane.*

But when the early state of mental weakness *stops as such*, and never becomes openly violent or insane, it will be rarely acknowledged as such by all concerned. But that there are such cases there is no doubt.

5. As a fifth point I introduce with somewhat of hesitation and caution the statement that *we find vaguely outlined in sane people as morbid feelings, hysterical acts, etc., the same mental states "in kind" as are observed among the insane.* I will not criticise anyone for differing with me, but will put this in the form of an opinion rather than a fact. Close introspection, at least with some of us, will reveal moods of depression, perhaps cleared up by fresh outdoor walks, and replaced by a more elated tone of mind. As we compare this morbid, illogical, and practically unreasoning depression with the state of mind of a very mild melancholiac who has not defined delusions, we can see vaguely the same depressed ideas in the latter case only in a more exaggerated form. So, too, hysterical acts in their more intense and less controllable form are found to constitute a type of maniacal state.

But if one cannot find—indeed, if he have not the data to find any such resemblances—many can at least know of and follow more closely the same kind of thinking as manifesting itself occasionally in the father, brother, or some other relative of the patient. Of course, in such case it is no more

strange, probably, to inherit the perversions of mind than it would be to inherit the more natural activity. At any rate, such judgments are made quite commonly to me by those technically ignorant of insanity. They are found in such expressions as, "Well, you will find that trait all through the family." Or again, "Her mother was very nervous and unstable also." Or, "I think she gets this trouble from her father," etc. Indeed, in cases in which heredity is constantly denied by the family, and dare not be asserted by the physician, such relatives often so notoriously show mental peculiarities that even such people as hackmen, landladies, or those who have only transient knowledge will assert, though in inelegant terms, the likeness. In due caution, however, it should be said that such likeness is only an occasional one, for in the large number of cases it cannot be found.

But more clearly than we can trace in different people these resemblances can we follow the *same person* up through the varying degrees of perversion. Take, for instance, a melancholiac as he progresses through the varying degrees of intensity of such depression to a fully defined hypochondriacal or melancholiac state. This occasionally progresses so slowly and deliberately as to exhibit most or all of the intermediate gradations. By all these, as well as in reasoning by analogy, there are *in the sane* outlined vague resemblances to the corresponding *insane* states of mind.

We reluctantly set forth this last point because of the wrong inferences that may be easily drawn from it. We do not mean to speak of everybody as a little insane, but only as *more or less ideally perfect*, and as possessing *more or less of mental ability*, and more or less of mental *stability* as well. Stated in this form, we do not think much of argument is necessary to sustain the statement.

6. It is charged that people send their relatives and friends to asylums to get "rid of them." The point that we would make is that a *large proportion of insane are sent to asylums to* (*in one sense*) *get rid of them*. This is one of the true functions of the asylum as well as of the school for imbeciles, that for the deaf and dumb, for the blind, for inebriates, and for defectives generally. If one stops to think of it he will see that it is *possible* to keep outside every insane person, but that the State policy is to offer its care for them if they get very troublesome. It offers, of course, supposedly better care, both medical and custodial, than would otherwise be obtainable; but the fact remains that one of the chief functions of asylums of all kinds is to relieve people of the burden of their relatives, which burden they can only carry themselves in an imperfect and defective way. And this asylum-care has, of course, more the element of *cure* than has the home-care. This being admitted, the only question remains, "How much of trouble" should be borne by relatives before accepting the care of the State? The answer is very complicated. It needs special consideration in each case. If wealthy, of course a good deal more should be done by relatives than if very poor. The degree of trouble to be borne before sending to the asylum will be seen to vary with varying circumstances, with varying ability, and with the estimated prospect of a cure.

A good many statements with less of the philosophic character than the preceding might be added. For example, it might be said that an *asylum is not full of raving patients*. If it is an asylum of over 1000 of all grades of insanity, both acute and chronic, with approximately one new patient per day (as is the case here), three or four cases of typical acute mania are about all that are liable to be found at any one time. Again, *raving cases do not continue raving*, but most always quiet down quite rapidly. Again, the frequent inquiry for dungeons or cells leads me to say that they *hardly have existence in the United States;* I never saw any of them.

Now, how will these preceding statements, if accepted, clear up the existing confusion of mind spoken of in the beginning, for example, that problem of expert testimony over which so many are honestly stumbling. If two equally able and opposing experts give opposing testimony, does it denote either perjury or incapacity somewhere, as has been hinted? I do not wonder at the question; but in the light of our analysis I would say that the solution would appear fairly easy. The cases that come under question in this way are probably and usually those border-line cases which can be easily decided one way or the other by the same experts, by simply shifting their standard of sanity a little forward or backward. I think the main error common to experts is the assumption of a partisan instead of a judicial attitude. Knowing that the whole case—judge, jurors, and community—demand a verdict of *total responsibility or total irresponsibility* of even the most border-line case, they, impressed as they are by past experience to the same effect, swing from their actual medium position to a positive one, disregarding thus entirely the first and second points made in our analysis.

I think I can conceive of a case, not necessarily imaginary, in which I could with equal justice, and equally valid arguments, maintain either the side of sanity or insanity. Let us take a case to illustrate (of a kind not essentially peculiar, nor perhaps as good as would be the insanity of epilepsy, but chosen as being the most familiar to our readers), of an aged man, who, gradually between the ages of sixty and seventy, becomes more and more feeble-minded, until at the age of seventy actual delusions

have crept in, and he is dull, perceives imperfectly, is querulous and hard to control, vacillating with motor feebleness, and in short, is a typical case of senile dementia. This is a very ordinary picture. Now at sixty he was confessedly sane and quite able. As he grew, first irritable, later garrulous and forgetful, still later selfishly suspicious and more forgetful, until finally delusive ideas prevailed, there must be passed somewhere a time when any expert would be puzzled not over the fact but over the name. One expert might place his standard of sanity near the sixtieth year, and say that the first changes of disposition constituted insanity. Another might place his nearer the seventy-year mark, and say that only when actual defined delusions appeared could insanity be named in the case. Another might say that ordinary early senile changes were normal and physiologic, and ought not to be called insanity at all.

But, pushed logically backward from the age of seventy, every expert, if logical, would find a point of doubtful standing and a place where the name would change from sane to insane, and where therefore he could give either name equally well. Of course, if thus cornered, he would say at once that like the distinction between youth and old age, he could give the facts, and the name would not signify. Yet he would immediately, under our present court-practice, be confronted with the fact that the name does occasionally signify all of the difference between life and death for the criminal. If still of logical mind, he would say the courts then ought to change, and recognize impaired mentality of varying degree, establish various degrees or kinds of restraint or penalty for such cases.

The rationale of this discussion is thus seen to lie in the fact that the law and public opinion do not, as yet (except in a roundabout way), thoroughly recognize any gradation between absolute non-responsibility and absolute responsibility. Consequently, the expert coming on the witness-stand thinks he must give, and in fact is half-obliged to give, one of these two opinions; and he will swing to the one side or the other of his "middle" position as he thinks he most honestly and justly can. Compelling the expert to take a judicial position is the only remedy. Allow him to admit reasons for leniency of judgment in the case of the criminal whom he has adjudged sane, or, on the other hand, for a severe restraint in the case of the criminal whom he has adjudged insane, because of the varying degrees of intelligence and responsibility exhibited. Although a full recognition of this is probable decades in the future, yet we cannot think the problem of expert testimony fully solved until such recognition is made.

By common consent insanity is indefinable; it is difficult to form a definition that is inclusive of all in anity and exclusive of all forms of sanity. As Dr. C. H. Hughes outlined before the International Medical Congress, no definition can be acceptable which leaves out idiocy, feeble-mindedness, and inherited states. To this idea we simply add by carrying our thought out into the world at large, and concluding that no one is ideally healthy, no one is ideally sane. As we say that a person is physically well, in spite of some deviation from the normal, so we can say that a person is mentally sane in spite of some deviation from the normal. And as these physical deviations, growing steadily worse, must sometime take to themselves the name disease, so the mental deviation, if increasing, must take to itself the name insane.

If these are true ideas and in the line of advance, the sooner they are adopted the better. The appeal is to common sense, and to common good judgment we must leave the answer as to their truth. As to the measures that follow their adoption, the main one, of course, will be modified penalties for the criminal insane, and modified restraint for the non-criminal insane; these modifications to be graded to meet the various grades of criminality or responsibility decided upon. But we think no hasty action should be advocated. Our knowledge as yet is not accurate enough to outline more than a few of these gradations. The words "defectives," "cranks," "neuropaths," "perverts," "feeble-minded," etc., indicate, however, a strong tendency to make such distinctions by medical and non-medical men. In the Prendergast trial again, the words "not entirely and perfectly sane" were used by the Judge in his charge as indicating a state still responsible enough to deserve hanging. The world is full of such expressions as "somewhat cracked," "not quite right," "a little daft," "very queer," etc., showing that the common sense of the world has for centuries recognized a multitude of impairments of mind, even while the medical and legal wisdom has refused to recognize such for fear of social disorganization.

The *medical* ideal is to find a point of unsoundness. The *legal* ideal is to find a state which shall be of "so great" mental disorganization as to make it evident that the patient can be held irresponsible without affecting public safety. The two elements are not considering the same question, and, as a matter of course, confusion and contradictions abound. The jury practically said, Prendergast is not insane "enough" to avoid punishment for the safety of society. Of course, in border-line cases the medical and legal views do not come to a square issue, inasmuch as the attorneys will befog the case for their own benefit, and the Judge will be thus the only one left to try and make it clear.

I think the first thing that comes to mind in considering any such doctrine as that of a modified but not destroyed responsibility is, that it unsettles free will and all complete responsibility, leaving us without a firm foundation to which to pin any faith. But this is but a most superficial view; a little inspection will show that we never can know, with even close approximation, a man's mental or moral standing, anyhow. It will show, logically, if man is not considered physically completely well and capable, or, per contra, absolutely incapable, that therefore insanity, considered as a symptom of physical changes, follows the same law of gradations instead of taking a position at one extreme. That to assume some exact and instantaneous line of division between sanity and insanity is to assume something contradicted by facts and by analogy itself.

If modified penalties were provided for the decisions of judges and juries they would decide more cases to be insane when so argued by the physicians. As it is now, the juries all know that it is wrong and dangerous to let such a man as Prendergast free; and they therefore override the testimony of insanity because they believe in some way that society should be protected; and in the latter idea *they are right*. It is evident that all men of homicidal tendencies ought to be restrained somewhere, and it is also evident that an insane paranoiac proved guilty of homicide ought to be committed somewhere for life in spite of insanity. The safety of society demands such restraint, and such provision would be much more wise than to hang some and let others go free after temporary detention.

For a last point, to the person who still fears the effect of admitting the doctrine of modified responsibility, we would seemingly only need to point to the fact that they themselves have admitted such a state frequently and easily, and have not found any disorganization of society to occur thereby. In young children we have practically a partial responsibility. As infants they are regarded at first as not at all responsible—later, as somewhat responsible, yet not suffering penalties by law for criminal acts; later, they become more responsible and receive modified penalties, such as the reform-school or asylum; later still, under the law of penalties, they are judged criminal, yet within allowances made for their youth; while finally, at adult life, they receive the full penalty of the law. If, then, children are so judged, what more of essential difficulty will there be in adopting modified responsibility by reason of *acquired* defect for such defectives as inebriates, the somewhat feeble-minded, and those in the earlier stages of insanity?

In final conclusion, then, we may be pardoned, if we regard the foregoing doctrines as based upon sound foundation, even though so far in advance of the times as not yet to have full recognition. Of course, a full study of the details is only for medical investigation and long medical experience. We cannot see that it will ever be possible that the judgments as to insanity can be given over to any kind of a jury in the place of medical men. For, as students of this special branch, we look back at the vague ideas of insanity which we had before making a specialty of it, and note the gradual growth of perception of accuracy which have come with such study since that time. We realize that it is only by medical and philosophic study of long duration that the greatest accuracy can be obtained.

Yet on the other hand it is manifest that popular ideas are daily overriding or setting aside such principles as are established by such long study, and that there is necessary an advance in popular ideas so that expert opinion will be accredited and accepted.

SOME OBSERVATIONS ON A METHOD OF MULTIPLICATION OF THE AMŒBA DYSENTERIÆ (AMŒBA COLI).

BY H. F HARRIS, M.D.,
OF ATLANTA, GA.

So much has been written during the last few years, both in this country and abroad, concerning the amœbæ dysenteriæ, and so general is growing the belief that they are the main causative factors in the production of certain very important pathologic processes, that every fact connected with their life-history becomes of interest and possibly of importance. Notwithstanding the numerous studies of these organisms that have been recorded, no direct observations, so far as I am aware, have been published concerning any method of reproduction. It is true that Kartulis succeeded in cultivating them in alkaline straw-infusions, and has described non-motile granular bodies that he supposed were spores; but, so far as I am able to learn, this was a mere inference based on no positive evidence. As other members of this group frequently multiply by direct division it naturally suggests itself that the same would also occur with these, but the failure heretofore to observe this seemed to indicate that if such is actually the case it must be of rare occurrence or does not happen out of the body at all.

During the last three years I have very frequently studied these organisms, and, although indications of reproduction were always watched for, never did I meet with more than a suggestion of this until July 16, 1894, when, while examining the fecal discharge from a patient who had relapsed two weeks before from what was apparently a complete recovery from the chronic form of amebic dysentery;

I noticed a large ameba lying in the situation shown in Fig. 1, *a*.

The main body of the ameba was elongated to many times its width and clubbed at either extremity. The lower portion of the body moved down the field more rapidly than the upper, causing a constriction near the middle, which progressively grew smaller and smaller; there had been apparently a pseudopod sent out, and following this, a constriction between its distal end and the body of the ameba,

FIG. 1.

Showing triple division. *a*. When first seen. *b*. After segmentation. *c*. Amebæ, with small and very unusual pseudopodia. *d*. One hour after division.

so that, when first seen there was a small band, not wider than 1 μ, but of considerable length, connecting the two bodies; this band was composed entirely of ectosarc. In perhaps half a minute after the ameba was first seen the thin ectosarc-rod joining the pseudopod with the main body parted near the middle, the ends becoming immediately rounded, and being drawn back rather quickly into the larger masses to which they were respectively attached; a few seconds later the body of the ameba divided at the point of greatest constriction, the ends being at first irregular, but becoming quickly covered over by the ectosarc. Even until division occurred the narrowest point of the body was 4 or 5 μ wide, and the ectosarc was continuous through the center. The two bodies produced by this separation, as the body previously liberated had done, at once became more or less rounded, moved, threw out pseudopodia, and in both movement and appearance in every way resembled ordinary amebæ.

In Fig. 1, *b*, are shown the relative position and form of the organisms about three minutes after segmentation. They seemed to retain but little vitality after division had been completed, which was possibly due to the fact that they had been passed several hours before and were examined at the temperature of the room; the weather, however, was very warm. Notwithstanding that there was but little progressive movement, for a time two of the amebæ sent out many pseudopodia, the character of some of which was very peculiar and like none I had before seen; the peculiarity referred to was first noticed in the ameba resulting from the pseudopod about five minutes after separation, and consisted in the protrusion of pseudopodia composed entirely of ectosarc, of a uniform diameter of about 2 μ, of a length about equal to the diameter of the body of the ameba, rounded at the extremity and sometimes straight, but usually bent at one or two points; they moved slowly from side to side, occasionally lying full length upon the surface of the ameba. After a time they were retracted, except in one instance, when, while lying upon the ameba, fusion took place between the two. From the larger of the two other amebæ similar slender processes were projected, never quite so long as in the other, but often many were thrown out simultaneously, as shown in Fig. 1, *c*; those coming out in near proximity gave a strong resemblance to the villous processes that occur in other varieties of amebæ. Their movements forcibly suggested that their object was the inclusion of food-materials. The large pseudopodia were in every way like those found in other amebæ. The remaining ameba became quiescent immediately after division and gave off no pseudopodia. Their appearance after one hour is shown in Fig. 1, *d*.

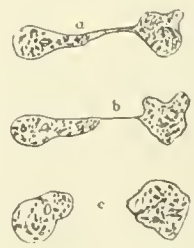
No further examination of the feces was made on this day, the foregoing being regarded merely as a chance-observation, not likely soon to be repeated.

Two days later the discharges were again examined, with the result that several amebæ were seen to divide into two. No other examples of the triple division were seen. In Fig. 2, *a*—*c*, is shown

FIG. 2.

a–*c*. Showing usual method of division.

FIG. 3.



a–*c*. Showing unusual form of segmentation; the middle portion, instead of breaking, slowly fades from view.

the type of division as generally observed. The body of the ameba elongates, a constriction results somewhere about midway between the two ends,

and increases until a mere filament of ectosarc remains, which suddenly snaps asunder. Occasionally variations occur, as in Fig. 3. When first seen the ameba was lying as shown at *a*, clubbed at the ends, somewhat constricted toward the middle, and seemed to be perfectly immovable; however, after some minutes slight alterations in form could be detected, and a narrowing of the intermediate portion, with a movement which was so slight that it was at no time perceptible; the connecting band became smaller and smaller, until it gradually faded from view. The two amebæ resulting scarcely moved after division had been completed.

On the 19th of July division was again observed, but two days later, although the organisms were quite active, the most careful examination failed to show anything of the kind. The patient died on the following day. Unfortunately, no post-mortem examination could be obtained.

It should be stated, in conclusion, that the amebæ from the stools of this patient were, some months before, examined very frequently for a period of over two months, and although they were quite active and very numerous, at no time was the slightest evidence of multiplication seen. The organisms here could in no way be distinguished from those which I have examined from other cases of amebic dysentery, and, with the exception of the related peculiarities, conformed in every particular to the descriptions of the best authorities.

UMBILICAL HEMORRHAGE: ETIOLOGY, PATHOLOGY, AND TREATMENT. REPORT OF A CASE.

By CHARLES F. CRAIG, M.D.,
of Danbury, Conn.

Hemorrhage, occurring at birth or soon after, from the umbilicus may be caused either by loose ligature of the cord or laceration of the same, or from pathologic conditions present in the blood-vessels or blood of the infant. It is with the latter variety, or true umbilical hemorrhage, that this paper has to do. Cases of this kind, unless the hemorrhage takes place from the umbilicus itself, and not from laceration or faulty ligature of the cord, are comparatively rare. The following is a *résumé* of most of those recorded:

Mr. Watts, of Kent, England (*Gentleman's Gazette*, April, 1752), reported one case. Dr. Francis Minot, in April, 1852, reported statistics of 46 cases. Dr. Stephen Smith, in 1855, reported statistics of 79 cases. Dr. J. Foster Jenkins, in 1858, published a monograph giving histories of 178 cases, and Grandidier collected the histories of 202 cases.

Taking all the statistics together, about one-third of the cases occurred in females, and two thirds in males; but it is hardly probable that sex has anything to do with the liability to the hemorrhage.

The time of greatest danger of hemorrhage taking place seems to be after the cord has fallen, as only 18 of Jenkins' cases occurred before this, while the greatest number occurred between the fifth and fifteenth days.

The causes of umbilical hemorrhage are generally either a faulty condition of the blood, especially its feeble power of coagulating, or a pathologic condition of the vessel-wall, or both. The accident is sometimes referable to the hemorrhagic diathesis or hemophilia. As to the cause of the diathesis, syphilis may be said to be the chief one. The disease may not only so alter the blood in the infant as to destroy its coagulability, but also produces inflammatory condition in the walls of the vessels. Sir J. Y. Simpson attributed many of his cases to this inflammation, which he believed caused thickening and infiltration, loss of contractility, and, therefore, a patulous condition of the vessel-walls.

Jaundice is sometimes accompanied by bleeding from the navel, and the icteric hue is nearly always present in umbilical hemorrhage. A condition of ill-health or anemia in the mother, due to any cause, produces a certain degree of a like condition in her offspring, and in this way may be an indirect cause of a liability to hemorrhage. Rarely, no cause can be found either in infant or parents.

The manner of occurrence of umbilical hemorrhage is interesting. Generally, without premonition, the first thing noticed is that the baby's clothes are soaked in blood, although this is sometimes preceded by jaundice. Out of 175 cases, 41 were so preceded. Colic, clayey stools and vomiting may also precede the bleeding. The blood may ooze slowly or rapidly. The most dangerous hemorrhages are those that occur at night, and in which a large amount of blood is lost before they are discovered.

As regards prognosis these cases are nearly always fatal, about ninety per cent. of infants so affected perishing. When jaundice and hemophilia are present the case is almost hopeless, while those cases having healthy parents, and in which the blood flows very slowly, stand a much better chance. Death occurs from exhaustion in from a few hours to three or four days.

The treatment may be summed up as follows:

1. Apply a compress of lint or sponge, soaked in an astringent solution, such as tannic acid, over the umbilicus.

2. If bleeding does not cease, cover the umbilicus with a thick layer of plaster-of-Paris, held in place until it hardens, and then bind this down with a bandage.

3. As a last resort employ the needles and ligature, passing two needles through the umbilicus at right angles, and wind the ligature around each in the form of a figure 8. These can be removed, if the infant survives, in four or five days and an iodoform-dressing applied.

4. A laxative should be given if indicated, and a few drops of brandy in sterilized milk as stimulation is needed.

At 9 P.M., October 5, I was called to attend L. S. in her confinement. She is an American woman, forty-one years of age, and has had four children, all of whom were and are healthy, the youngest being now ten years of age. After a long labor, due to defective pains, she gave birth to a boy weighing about seven pounds. At the time of birth he was nearly asphyxiated, but was finally brought around; the cord was carefully tied and washed, and the child placed in bed, where he was quietly sleeping when I left the house. On my visit next morning I found both mother and baby doing nicely. Early the next morning I was awakened by a messenger who said that the baby's cord was bleeding. I hastened to the house and found the child's clothing soaked with blood, and on removing it, saw that the blood oozed from the point of juncture of the cord and the floor of the umbilicus. I at once applied a compress, and the bleeding ceased in a few moments. The mother said that waking in the night, she lifted the baby, and in so doing felt something warm flow over her hand. Calling for a light, she saw that the baby's clothing was covered with blood, and at once sent for me. The blood was not clotted in the least, nor would it clot. On my call later on the same morning, October 7, I found that the bleeding at the umbilicus had ceased, but was told that the baby had vomited blood several times. For this I ordered grain-doses of tannic acid, to be repeated every hour until the vomiting ceased; and on calling that evening found that no more blood had been vomited. The next morning (October 8), I found that no more vomiting had occurred, but that the child had a jaundiced look. Later in the morning I was again called, and on reaching the house found the baby's clothes over the abdomen saturated with blood, and on removing them, I found the blood oozing rapidly from the umbilicus. I at once applied plaster-of Paris, which stopped the bleeding, but the baby died in a few moments afterward. At the time of death the skin was deep-yellow in color, and there were numerous purpuric spots over the forehead.

I was unable to procure permission for a post-mortem examination. The fault in this case lay in the blood of the child, no doubt, as it would not coagulate.

A remarkable feature of the case was the occurrence of intestinal hemorrhage on stopping that at the umbilicus, and the re-establishment of the umbilical hemorrhage after the vomiting of blood had been controlled by the tannic acid.

I could obtain no history of syphilis or other constitutional disease in the parents.

GUAIACOL EXTERNALLY IN TUBERCULOSIS.

By J. SOLIS-COHEN, M.D.,

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In The Medical News of September 30, 1893, I published a "Preliminary Note on the Pronounced Effect of the Endermatic Use of Guaiacol in Controlling High Temperature in Tuberculosis." After more than a year of continuance of the treatment it is worth while to add my present satisfactory impressions of the remedy, the result of its use in something under fifty cases, some thirty of them in the Home for Consumptives at Chestnut Hill, and therefore under peculiarly favorable surroundings.

We began in that institution with a dose of ♏ xlv, as had been recommended in the French journals. This dose was far too great in the climate at Chestnut Hill, and sometimes produced positive collapse. So rapidly did the temperature fall that the lips and finger-tips of the patient soon became blanched, the cardiac impulse weak, and the perspiration profuse. We then diminished the dose. We found ♏ xxv a good average. Some patients did equally well with doses of ♏ xx, ♏ xv, and even of but ♏ x.

Free perspiration is a good indication of satisfactory action of the remedy; the temperature falling more rapidly the more free the perspiration. When perspiration is slow, hot milk or other hot drink given just before the remedy is applied, or hot water-bags placed along the surface of the body, will favor the perspiration.

Temperature reduced with ♏ xv of guaiacol does not remain reduced for so long a period as when reduced with larger doses. It will generally rise again on the following day. If a dose of ♏ xx or ♏ xxv is then rubbed into the same patient there will probably be a prompt reduction of three or more degrees, perhaps even a degree or so below the normal standard, with return to normal in a few hours, and continuous maintenance of the normal temperature for three or four days, a week, or longer. This normal temperature was maintained for six weeks in one of our hospital-patients.

Should the temperature fall very rapidly from 103.5° or 104° to below normal, with profuse perspiration, the patient will feel cool and comfortable the cardiac impulse will remain unimpaired, and the lips and finger-tips will continue rosy until the temperature has dropped to about 99°. Then, if the temperature continues to fall, as it sometimes does, to 97°, or even to 96°, the sensations of comfort are replaced by sensations of chilliness, and the rose-tint of the lips and the finger-tips becomes empurpled. A hot drink and a hot-water bag at the side will send the temperature back to normal in a few

minutes, and the patient may fall into a refreshing sleep.

The method of using guaiacol at the Home for Consumptives is as follows: The skin where the guaiacol is to be rubbed in is well washed with soap and water, and then thoroughly dried. The place selected is a matter of indifference, but we have usually chosen a spot over the seat of greatest lesion of the lung. Ten or more minims of guaiacol, as may be wanted, are poured into a dish, whence it is taken up upon a camel's-hair pencil and brushed upon the parts, back and forth, until the whole dose has been absorbed. This will take ten, fifteen, or more minutes. Then the part is rubbed dry with the hand, after which it is covered with a layer of cotton protected by paraffin paper or oiled silk. In many cases the temperature drops a degree or more before the rubbing is completed, and two degrees within thirty minutes of commencing the application.

When the patient is near death, and the temperature elevated in consequence of the approach of dissolution, guaiacol in the doses in which we have applied it had no effect in arresting continuous rising of the temperature.

It may be concluded that the endermatic use of guaiacol, when carefully employed, often promotes the comfort of the patient in a manner which cannot be obtained from its use by ingestion, by subcutaneous injection, or by direct injection through the air-passages.

ORIGINAL LECTURE.

ANTERO-LATERAL SCLEROSIS; POSTERIOR SCLEROSIS; PATHOLOGY AND TREATMENT OF LOCOMOTOR ATAXIA BY SUSPENSION AND BY APPARATUS.[1]

BY DE FOREST WILLARD, M.D.,
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AND

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THE degenerations of the spinal cord, or the system-diseases of the cord, constitute the most hopeless class of affections in spinal pathology. Insidious ofttimes in their onset, relentless in their advance, cutting off one by one the means of progress, the exercise of the senses, and the control of the mind, these diseases have long been treated in vain. Why should we be content to calmly listen to the funeral march as these patients are borne, one by one, to their final resting place? In the language of a distinguished teacher, we are saying to them as they enter our consulting-rooms: "My dear sir, you have a strip of fibrous tissue in the back part of your spinal cord; it is very small, but it will get bigger, and you will grow worse. Why it comes there I do not know, and why I cannot stop it I cannot understand; but I have triangulated your nervous centers, located the lesion, and if I ever get your cord I can dye the affected part a beautiful orange-yellow or a bright carmin-red."

The whole range of the scleroses and palsies of various types has waited patiently, despairingly, at the fountain of science. We can pity the patients, but our outstretched arms seem powerless to save. We are encouraged, nevertheless, to find some faint streaks of light in the East that are beginning to dispel the gloom that has overshadowed us and that are ushering in a day of new things,

Although, as a rule, the scleroses of the cord are gradual in their onset, and although it is customary to ascribe to slowly-operating causes their production, yet cases of acute locomotor ataxia are not infrequently observed. It is quite likely, also, that traumatism is the initial cause oftener than is generally supposed. Careful inquiry will sometimes elicit the fact that the disease dates from an injury to the back, or that a slight accident has hastened or developed an attack. It has happened that a man has received a blow upon the back producing myelitis with paraplegia and sensory disturbances of the lower extremities; the disturbances, let us say, were chiefly on the left side; a second injury was sustained, and ataxia and loss of knee-jerks supervened.

It is probable that in persons of a neurotic predisposition, locomotor ataxia is precipitated by traumatisms of even a slight degree. Spillman and Parisot have analyzed fourteen cases of tabes associated with peripheral injuries of various kinds, and they cite fractures, contusions, and wounds of the extremities, the extraction of teeth, or even the operation for cataract, as precipitating the disease. But here, as elsewhere, the danger is that *post hoc* is not always *propter hoc*.

Acute locomotor ataxia, according to Leyden, may follow acute diseases; it may succeed to diffused neuritis. It may begin as traumatic myelitis or as meningo-myelitis. We are not without evidence that there is a tendency toward secondary degeneration of a particular set of fibers after a local accident to the cord, such, for example, as compression-myelitis. In a recent case of Preston's, of Baltimore (MEDICAL NEWS, March 18, 1893), this was well shown. In this instance a man, aged twenty-three, was crushed by a bank of earth. There was no external injury of note. There was entire loss of sensation and of motion below the level of control over the bladder and rectum. The superficial and deep reflexes were abolished. Bedsores of a trophic nature formed. Death occurred on the fiftieth day, and examination showed a fracture of the last dorsal and first lumbar vertebræ, with compression of the cord. A microscopic examination showed degeneration of the posterior columns reaching into the cervical region. On the other hand, there may occur a degeneration also of the lateral and direct cerebellar tracts.

Following an accident an ascending degeneration of the posterior columns and direct cerebellar tracts may ensue, and at the same time a descending degeneration of the crossed pyramidal tracts of the lateral column. Such a case was reported to the College of Physicians

[1] One of the Mütter Course of Lectures delivered before the College of Physicians of Philadelphia.

of Philadelphia, four years ago by Meigs (*Trans. College of Physicians*, 1890). In this instance a sailor was struck by a wave and dashed against the bulwarks of a vessel, causing him to strike the back of his head and neck against the rail. He at once lost all sensation and power of motion from the clavicle downward, and from the time of the accident he had retention of urine and incontinence of feces. Post-mortem examination thirty-six days after the accident showed that there was neither luxation nor fracture of the spine, but there was a small extra-dural hemorrhage into the spinal canal at the level of the seventh cervical vertebra. Microscopic sections of the cord above the seat of injury showed degeneration of the posterior columns (columns of Burdach and Goll), of the whole of the direct cerebellar tract, and of a portion of the antero-lateral ascending tract, while below the seventh cervical vertebra the crossed pyramidal tracts of the lateral column were degenerated. (See illustrations in article alluded to.) In the lumbar region the lateral limiting layer and the direct cerebellar tracts, together with the enclosed crossed pyramidal tract, were degenerated, though in less degree than the latter. Cases of this kind and other cases in which the traumatism is not so severe show that after the primary lesion has cleared up a system-lesion may be left as a residuum in the cord.

The relation of the different forms of myelitis to the various scleroses has not yet been investigated as it should be, and it offers an excellent subject for special study. How far these affections are a part of the process of inflammation is a matter of dispute. The term is broad enough to embrace the most flagrant febrile process as well as the chronic succession of changes pervading an organ or certain tracts of tissue, and disclosing, after years of existence, simply a hyperplasia of fibrous tissue without any febrile symptoms having been observed.

At the foundation of all inflammatory processes lies the principle of infection, and it is not altogether unlikely that all cases of myelitis and all the scleroses, whether primary or secondary, may in the future be harmoniously related to their respective infections. How far we may be carried by the present all-pervading belief in the microbic origin of these diseases we cannot now say, but I note that no less an authority than Dana has recently published a paper entitled "The Microbic Origin of Chorea, with a Case," (*Trans. Amer. Neurolog. Assoc.*, 1893). Dana found diplococci in the superficial layer of the cortex and in the deep layer of the pia, in which situation there were cellular infiltration and degenerative changes, and in the medullary and upper part of the cord there were evidences of meningeal irritation, vascular disease (arteritis) and nerve-root irritation. At the Congress of American Physicians and Surgeons, in 1891, Dana discussed the nature and causes of the scleroses of the spinal cord, and announced his faith in the newer pathology. The old belief that sclerosis of the cord is a parenchymatous inflammation with secondary growth of connective tissue is giving way. It is a degenerative process, showing under the microscope a gradual decay and death of the nerve-fiber and cell. In some sclerotic processes, like locomotor ataxia, this decay is accompanied by the development of irritating products, leukomains or tox-albumins, which may produce so active a change in the connective tissue as to lead to something resembling a secondary or reactive inflammation. Just what is the ultimate cause of these degenerative processes is not known. As yet no microbe has been discovered. We have simply the toxin theory—a working hypothesis—a disturbance that may be likened to that which has been observed upon the solar system, and which the French astronomer knew was due to an undiscovered planet.

Some believe that this is a steadily secreted poison in the human body, and that it is constantly acting on diseased tissue; they bring in evidence the fact that many degenerative processes follow syphilis and the infectious fevers, and they account for it in the suggestion "that pathogenic germs have poured into the system a poison or have so modified the cellular nutrition that there is a poison constantly thrown out which irritates and destroys certain areas of nerve-tissue."

Then, again, in Friedreich's ataxia, the hereditary form of sclerosis, it has been shown that certain strands of the spinal cord were never endowed with vitality enough to carry on their functions for more than a decade or two. With this premise some have enunciated the view that by the presence of the poisons of certain infectious organisms the nerve-cell is stunned and its growth stunted; it follows that nutritional equilibrum is destroyed and premature senility and death are brought about.

Sanderson in his Croonian Lectures on the "Progress of Discoveries in Relation to Infectious Diseases" (*Brit. Med. Journ.*, 1891) states, that whereas degenerative diseases do not follow those infections which do not confer long immunity, such as diphtheria, sepsis, erysipelas, tuberculosis; and whereas on the other hand, diseases that do confer long immunity, like typhoid fever, measles, scarlet fever, smallpox, syphilis, etc., are most likely to set up degenerative changes, it would, therefore, not seem unlikely that the very thing which protects against recurrence of infection may be the cause of some internal degenerative change? It is probable that immunity is secured through the modification of cell-nutrition and through the continued presence of some antitoxin in the liquor sanguinis.

It is important to bear in mind in connection with researches in the pathologic anatomy of the nervous system that there are important and often misleading changes, both gross and minute, produced in the spinal cord by injury during its removal from the body and its preparation for microscopic study. Attention has been called to this subject by Van Gieson (*N. Y. Med. Journ.*, 1892), who has compared the lesions produced by bruises with the conditions found in a number of reported cases of malformation of the cord. The lesions artificially produced are reduplications of the gray matter, irregularly shaped horns, canals, cyst-like spaces, and misplaced gray matter, and they may be produced any time at an autopsy by careless technique or bruising. It has been shown that just such artefacts have been erroneously described as congenital malformations or as the result of pathologic processes, and have given occasion for extensive and interesting speculations as to their supposed relations to the production of disease-processes.

Among the surgical measures that have been adopted in the treatment of lateral and posterior spinal sclerosis,

suspension has been the most widely employed. The apparatus used was brought to the notice of the profession by Motschutkowski, of Odessa, Russia, and about the same time Charcot reported encouraging results from its use in France. Three or four years previously Dr. Weir Mitchell had adopted the same measures in two cases of sclerosis, but failure to obtain good results prevented further trial at that time. The measure in itself is not by any means a new one, having been used as long ago as 1826 by Prof. J. K. Mitchell in cases of Pott's paralysis; in fact, it has been in use for centuries for various conditions of the spinal column. Motschutkowski made his observations first on a tabetic patient to whom he was applying Sayre's plaster jacket for the treatment of spinal curvature. He noticed a remarkable improvement in certain symptoms. Raymond, of Paris, who was in Russia on a scientific mission called Charcot's attention to the Russian publication.

Without going into the history of this procedure it will be enough to say that an enormous amount of literature appeared upon this subject in 1889. Five-hundred-and-sixty cases are reported in which suspension was adopted, and several valuable papers on this subject were published in the *Transactions* of this College in that year. The treatment has been extensively adopted in Philadelphia since that date, but with varying success. For a time almost every large hospital in this and in other cities gave the plan a fair trial. The various reports claimed improvement in a proportion varying from 30 to 87 per cent., the highest being Motschutkowski's original record, but no cures were noted.

In 1890 Dr. Guy Hinsdale, of Philadelphia, reported twenty-three cases treated at Dr. Weir Mitchell's clinic at the Orthopedic Hospital and Infirmary for Nervous Diseases. Of the twelve cases which had fifty or more suspensions, in seven there was reported a lessening of pain; in two there was no change; one had no pain to start with and none at the end of treatment; while in two the pains were worse. As to sexual power five reported increase; one, lessening; one had always been good; and one not stated. In no case was there such a gain in sexual power as to make a man competent who had been incompetent before the commencement of the treatment. The gait was improved in four cases; in seven it was unchanged. Station improved in six; was unimproved in four, and was good to start with in two. Knee-jerk was unchanged in all the cases. Bladder-control was impaired in four; rectal control was unaffected. In general it was found that many cases feel an indescribable sense of gain from suspension. They feel better, eat better, sleep better, and wish to continue the treatment. Now that the novelty of the treatment has worn off, it is natural to find fewer cases at present being treated by this method.

At the University Hospital suspension has yielded fair results, and by the kindness of Dr. C. S. Potts I am enabled to give the results in the following cases hitherto unpublished. In a total of eleven cases four were very much improved, and the remaining seven, while not sustaining any marked improvement, invariably felt better for some time; and several of them after the treatment had been stopped returned requesting to have it continued. The special symptoms relieved were the pain, incontinence of urine, sexual weakness to some extent, and several in whom muscular weakness of the legs was present felt much stronger after the suspension.

The apparatus used was that of Charcot, as modified by Mitchell, in which the elbows are displaced in slings, a band around the waist preventing the arms from getting away from the chest. In this way the force applied to the head may be easily regulated. The duration of suspension was one-and-a-half minutes at first, gradually increasing to four minutes. The only bad symptoms reported were subsequent attacks of vertigo; one fainted the first time, but bore it well afterward; the patient, however, was in an enfeebled condition. It is proper to state that all but three of these patients took, in addition, internal remedies, potassium iodid, mercury, etc. The treatment was certainly palliative if not curative.

The following are synopses of three cases in which improvement was observed.

Case I.—Mrs. S. was in the first stage of locomotor ataxia, probably of specific origin. She had been treated with anti-syphilitic remedies for some time with benefit, except that severe burning pains in the feet were not relieved. She was then suspended every day for six weeks, and the pains almost entirely disappeared in that time.

Case II.—T. P. had been ataxic three years, and unable to walk without a person supporting him. He suffered from incontinence of urine and gastric crises. After the third suspension he felt better; after the fifth he could walk without assistance, and the bladder-symptoms were much improved. After two weeks' treatment he had an erection of the penis, the first for over a year. This recurred every morning throughout the remainder of his treatment. At the end of a month of suspension he returned to his home, able to control his urine and to walk much better; and his attacks of vomiting and pain were much less frequent. In addition to the treatment by suspension he took silver nitrate for two weeks.

Case III.—The disease was of specific origin. The man had had internal treatment for seven months without much improvement. He suffered pain in the legs, sexual weakness, and was unable to walk a block without sitting down. After suspension his pains ceased, his legs grew stronger, and after treatment on alternate days for four months he returned to his work as a shoemaker. One year later he was married, and since that time a child has been born.

Stewart has reported (The Medical News, Sept. 12, 1891), from the Jefferson Medical College, a case of postero-lateral sclerosis which showed remarkable improvement as to gait, station, and tactile sensation. The patient was suspended three times a week for five months, suspension being made as frequently by the head alone as with the arm and head supports. The duration of each treatment was about five minutes.

That suspension produces a change for the better in many of these refractory cases has been definitely proved, but just how it acts upon the living spinal cord is still a matter of conjecture. Measurements show an elongation of the spinal column amounting in some instances to one-and-a-half inches. This stretching involves in its tension the surrounding structures, the muscles and tendons, and also the spinal cord and dura mater, and spinal nerve-roots. Adhesions from chronic meningitis are broken down, and it is possible, but not proved, that

this allows a freer transmission of nervous influence along the nerve-tubes, more especially those which run on the surface of the posterior columns. Hegar's post-mortem studies show that in the dorsal region the dura of the cord is lengthened 5 mm. by moderate flexion of the spinal column. He produced this by placing blocks under the chest and abdomen, and bending the neck, the legs being free. Strong flexion was found to increase this length to 7 mm. The dura returned to its normal length on placing the cadaver in a straight position. Hegar laid bare both sciatic nerves, inserted threads at different levels and made a strong pull. The distance increased one millimeter; the spinal column was again flexed and the distance increased six millimeters, and in this position the sciatic nerves were strongly pulled and the distance increased eight millimeters. The spinal column was next exposed, and the two threads were stitched into the substance of the cord at a distance of 15.35 c. m. from each other. Moderate flexion lengthened the cord 0.75 c.m., and strong flexion over 1.05 c. m. Thus it was shown that the cord itself allows greater extension than does the dura.—(Douglass Graham, Hegar, *Wiener med. Blätter*, 1884, No. 3.)

Cattani has shown that stretching of nerve-trunks is accompanied by tearing of the axis cylinder, stretching of the medullary sheaths, with subsequent degeneration and regeneration. Such manipulation of the nerve tissues doubtless makes a great change in their vascularity. Just as Swedish movements and massage renovate the muscular system, so it is highly probable that flexion and extension of the cord and the accompanying stretching that occurs combine to alter and improve the nutrition of the tissues affected.

The first surgeon to apply *stretching of peripheral nerves* in a case of ataxia was Langenbeck. This operator stretched the sciatic, and improvement at once followed; the pains were diminished in a remarkable degree, and the incoördination became less. The experience of other operators has not been satisfactory, however, and it is only in cases in which the pain is intense and referable especially to the sciatic nerve that nerve-stretching should be considered. All theories proposed to explain the action of this procedure have failed to satisfy the profession, and "it would seem now to be passing into merited disuse" (Gowers).

One of the remarkable features of the surgical pathology of spinal scleroses, particularly of locomotor ataxia, is an occasional trophic alteration of skin, teeth, bones, and joints. Prof. Charcot's name is identified with the knowledge of these spinal atrophies, while other French writers, notably Ball, Oulmont, Bouchard, and Dejerine, and in this country Dr. H. C. Wood and J. C. Shaw have rendered important contributions to the subject. Charcot depicts on the one hand cases of extraordinary wasting of the articular ends of the bones. In a femur it was found that the head and most of the great trochanter had disappeared; the edge of the acetabulum had atrophied to a corresponding degree. On the other hand, the changes to which attention was first attracted are those of swelling of the joints and thickening of the bones. (Fig. 1.) While it is possible for any of the joints to become affected, the arthropathy is more common in the knees, the ankles, and the small bones of the foot. (Fig. 2.) This typical swollen foot has been characterized by Charcot as "la pied tabetique." The tabetic hand (Figs. 3 and 4), as well as the tabetic foot, may occur, and the example which is shown in the drawing from the publication of M. Ball is characteristic; it is extremely rare, and Dr. Wood, who has portrayed it in his work, says that he has never seen an example.

Fig. 1.

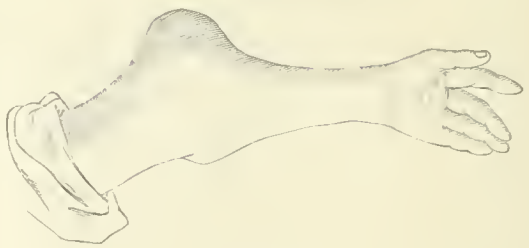

Fig. 2.

Fig. 3.

Fig. 4

Tabetic bones in the stage of hypertrophy have been carefully analyzed in France; the phosphates were found to be greatly diminished, but the fatty matter in the dilated Haversian canals was enormously increased. "The histologic and chemic results show a strongly marked resemblance between the bones of locomotor ataxia, of osteomalacia, and of general paralysis" (Wood). An atrophy secondary to hypertrophy succeeds in advanced cases of tabes, and in such cases fractures of the long bones are liable to occur. When this happens there is apt to be rapid and excessive formation of callus; or again, it is possible to have

atrophy in one limb and enlargement in the other. Thus, in locomotor ataxia, as in general paralysis and allied diseases of the nervous system, the changes in the bones are of a trophic character, tending to atrophy and hardness; or, on the other hand, there may be permanent alterations related to those found in osteomalacia.

Much light has been thrown on the occurrence of atrophy in tabes by the discovery that in some cases of locomotor ataxia the nerves themselves are the seat of the disease. Investigations of the peripheral nerves in tabes by Dejerine, Goldscheider, Shaw, and others show that the ganglion-cells of the anterior horns of the spinal cord are not always accountable for the atrophy, but that the peripheral nerves as far as the atrophied muscles have undergone disease, in cases in which atrophy is the marked symptom.[1] Atrophy in tabes usually affects the lower extremities, and as it progresses the muscles and tendons undergo shortening, giving rise to contractures and fixation of the neighboring joints. Much of this contracture and fixation is due to want of use, as well as to spinal arthropathy. Attempts have been made to produce these bone-changes artificially in animals by operations upon the nerve-centers, so that, if possible, degeneration might occur in the spinal cord with a resultant lesion of the joints. Giacomo (*Soc. de Biologie*, March, 1885, p 156, quoted by Wood), in a very large dog cut the posterior roots of three lumbar nerves between the ganglia and the cord. After some months the joints of the left foot became enormously swollen and edematous, without increase of sensibility or temperature. At the autopsy it was found that secondary degeneration had occurred in the spinal cord at a level corresponding with the joint-changes.

In cases of tabes which extend through a comparatively long period of time, degeneration of the peripheral nerves may involve the patient in another very serious change, to wit: symmetrical gangrene of the toes. I am not aware that such cases have been reported in Philadelphia, but a recent case of Pitres, of Bordeaux, presented this condition in the following history:

The first symptoms of tabes were observed in 1875; five years later lancinating pains in the legs began, and the chief clinical features of the case were well established; ten years later the patient felt as though his toes were dead during cold weather, while in hot weather they became blue and swollen and pained greatly.

In the sixteenth year from the onset of this train of symptoms gangrene became fully developed in all the toes of the right foot and in the great toe of the left foot. The patient dying by accident shortly afterward, the usual condition of the spinal cord was found, together with a very marked degeneration of the corresponding peripheral nerves. Nevertheless, numerous apparently normal nerve-fibers existed. (*Revue Neurologique*, May 15, 1893.) Another case of symmetrical gangrene of the toes occurring in a tabetic patient has recently been recorded by Kornfield (*Wiener med. Wochenschr.*, November 5, 1892.) An interesting feature of the case was a certain resemblance to cases of syringomyelia viz.: in the characteristic dissociation of sensibility; or, in other words, symptoms of posterior poliomyelitis, anesthesia to pain, to heat, and to cold, with preservation of tactile sensibility and of the muscular sense. But, on the other hand, there was no characteristic muscular atrophy. Post-mortem examination showed, besides the sclerosis of the posterior columns, an acute inflammation of both peroneal nerves, fully explaining the occurrence of gangrene. (Fig. 5.)

Fig 5.

Those who have investigated the peripheral nerves in tabes concur in finding the most decided changes in the peripheral ends. The microscope shows the myelin broken up into irregular masses of various sizes; later on absorption of this granular-looking material occurs, and the sheath of Schwann is found empty and shrivelled. The axis-cylinder frequently remains for a long time unaffected, and in some specimens it can be seen very sharply stained by carmin in the sheath with very little myelin around it. (Shaw, *International Clinics*, vol. iii, 1892.)

The view is gaining ground that tabes is a more diffused lesion of the cerebro-spinal axis and of its branches than has hitherto been realized. It would be much better in post-mortem studies of locomotor ataxia if attention were not riveted too closely to the spinal cord, but that more attention be given to the peripheral nerves and to the arterial blood-supply of these and of the spinal cord. Gowers has called attention to this, and lately Preston (Medical News, July 8, 1893), attributes to arterio-sclerosis of the intercostal vessels a diminished amount of blood in the spinal cord, and in consequence of this imperfect supply of nutriment an atrophy and degeneration of the nerve-elements. As a consequence of this degeneration of nerve-matter there starts partly from the sheath of the nerve, partly from the bloodvessel, an outgrowth of connective tissue, which in its turn encroaches upon this often less resistant nervous matter, giving the characteristic picture of sclerosis. Preston shows that the etiologic factors, by common consent conceded to be the most important in the causation of tabes, viz: syphilis, exposure to cold and wet, or rheumatism, and alcoholism, are the exact conditions most

[1] J. C. Shaw, International Clinics, 1892, vol. iii, p. 176.

favorable to the development of arterio-sclerosis. Acting on this supposition, he has suggested the use of nitroglycerin in order that the small branches of the spinal arteries may be dilated and a larger supply of blood be afforded the cord.

In the surgical treatment of these pathologic conditions it is obvious that but little can be done. Contractures occur so late, marking the hopeless progress of the affection, that interference by the surgeon can only avail little. The condition of the limbs can, however, sometimes be benefited by tenotomy when the existing degree of incoordination does not present an insuperable obstacle to locomotion.

CLINICAL MEMORANDA.

A CASE OF GLAUCOMA SIMPLEX.

BY GEORGE M. GOULD, M.D.,
AND
E. M. HEWISH, M.D.,
OF PHILADELPHIA.

THE peculiar interest of the case here reported resides in the progress of an attack of uncomplicated or simple glaucoma to comparative blindness without the usual symptoms consisting in or consequent upon an excess of ocular tension, with no pain, headache, etc. The diagnosis depended solely upon the recognition of the existence of a deep pathologic cupping of the disc.

Mrs. B., seventy-three years of age, an active and, for her age, a healthy woman, consulted Dr. Hewish for a simple defect of failure of vision, in the summer of 1894. Some three years ago she got glasses from an optician, but they had, of course, never proved satisfactory to her. Owing to myosis, examination of the eye-ground was impossible until temporary dilatation of the pupil had been secured through a mydriatic. The pathologic cup was at once recognized, and treatment by eserin was instituted. Vision of the right eye had become reduced to a mere macular perception of light, and of the left eye to a macular counting of fingers. At no time was the tension of the right eye above normal, and that of the left eye, if it were really at all "plus," was only very slightly so. The anterior chambers were quite normal in depth, or but very slightly shallower than normal. There was no injection of the conjunctiva, no sensitiveness to touch, and no marked corneal anesthesia. No headache, pain, or even discomfort of any kind had at any time existed in or about either eye. This statement the patient persistently emphasized.

The patient absolutely refused operation, and under the circumstances we advised a temporary trial of systemic therapeutics. The patient had been confined to the house for a long time, and there was considerable constipation, but beyond this, except as regards some worry and trouble from recent family misfortunes, the woman was healthy, clear-minded, and for one of her age, very active. Laxatives, almost to purgation, and tonics were freely administered, out-of-door rides and walks ordered, and general hygienic reform instituted, but all without effect on the ocular condition. The vision, if possible, got worse. The eserin was continued for the two weeks in which we tried the measures directed to the general condition.

We now determined to have a thorough opthalmoscopic examination, not only for the purpose of establishing the diagnosis, but also to see if mydriasis would increase the vision and the tension, and to test the field,, etc. This had previously not been possible by both of us owing to the myosis. The pupils quickly responded to weak solutions of homatropin, and the disc-cuppings were found to be extreme, "undercut," typically glaucomatous in the highest degree. There was no venous or arterial pulsation of the vessels observable. Neither the tension nor the vision was noticeably increased by the mydriatic. Three days later, operation having been consented to, we performed iridectomy on the left eye. There was no gush of aqueous on opening the anterior chamber beyond that usual in normal eyes. Operation on the right eye was postponed because of the absolute normality of the tension, the almost complete blindness, and also because we concluded to await the results of the operation upon the eye that had some vision left, and that, if at all, was slightly firmer than the other. The operation, *per se*, was successful; *i. e.*, it was almost wholly bloodless and carried out easily, and a fair-sized coloboma was secured. Healing was remarkably prompt and good, no iritis or other untoward symptom supervening. The eye is now as quiet as it has always been, but vision is not improved. All local applications, including eserin, have been discontinued; the pupils have returned to a normal size, show no tendency to mydriasis, and the tension remains as uninfluenced by the operation as it had been by the eserin.

It seems remarkable that a condition essentially glaucomatous, if we may trust the story told by the ophthalmoscope, should exist without what is undoubtedly held to be the essential symptom and characteristic of the disease, that is, increased tension. With the absence of abnormal tension there has always coexisted an absolute absence of the subjective symptoms of pain and irritation. The only trouble the patient has ever remembered or complained of is visual failure. She has never seen rainbow-rings or halos about a light. Of objective symptoms there has been no heightened tension, unless very slight indeed, in the one eye, the other having gone on to blindness without, so far as can be determined, any rise whatever. There has never been any conjunctival or corneal congestion or other disorder, no mydriasis, no marked corneal anesthesia or loss of transparency, no iris-abnormalism, etc.

The case is to be held, therefore, as an extreme and perfect illustration of "simple glaucoma," concerning which Fuchs has written:

> The relation of glaucoma simplex to glaucoma inflammatorium has been the subject of manifold discussions. Since glaucoma simplex, on account of the absence of inflammatory symptoms, is entirely different externally from glaucoma inflammatorium, it was not recognized as glaucoma at all until the discovery of the ophthalmoscope. Even Von Graefe did not originally place glaucoma simplex under the head of glaucoma, but designated it as amaurosis with the excavation of the optic nerve.
>
> Jaeger held to this view until the last, looking upon glaucoma simplex as an optic-nerve lesion *sui generis*—a "glaucomatous" optic-nerve lesion. At the present time, however, the majority of ophthalmologists place glaucoma simplex under the head of glaucoma proper, since it has in common with its most essential symptom, the increase in tension. The inter-connection of simple

and inflammatory glaucoma is also proved by the numerous intermediate varieties which form a continuous transition from simple to inflammatory glaucoma, so that no sharp line of distinction can be drawn between the two.

To these transition-forms belong, for example, the cases of glaucoma simplex with periodical obscuration of vision, and which are accompanied by transient cloudiness of the cornea, and often as well by a dull headache. Even in pure cases of glaucoma simplex, a constant headache sometimes exists, the dependence of which upon the glaucomatous process is proved by the fact that it disappears after iridectomy. A glaucoma simplex, later on in its course, often passes into acute or chronic inflammatory glaucoma, and cases also not infrequently occur in which, after inflammatory glaucoma has developed in the eye first affected, glaucoma simplex is present in the one which is affected afterward.

The inter-connection of the two forms of glaucoma shown from the above-mentioned facts has been doubted because in many cases of glaucoma simplex no evident increase of tension is demonstrable. In these cases we must assume that the lamina cribrosa is particularly yielding, so that it is forced backward by a pressure which does not perceptibly rise above the normal limits. Such cases, to be sure, are not always clearly distinguishable from simple atrophy of the optic nerve with unusually deep excavation. In doubtful cases the testing of the color-perception may furnish a diagnostic guide. In atrophy of the optic nerve color-blindness makes its appearance early, while in glaucoma the ability to distinguish colors is retained for a comparatively long time.

Our principal object in reporting this case is to emphasize two practical points of interest springing from it, and which convey profoundly important lessons:

1. *The ease with which such cases may be overlooked by the physician.* The absence of all objective and subjective symptoms, except the loss of vision and the one shown by the ophthalmoscope, illustrates the necessity of careful ophthalmoscopic examination in every case coming to the oculist. It is to be feared that such an examination is not absolutely invariable, and that the hasty diagnosis of "amblyopia" is, as it were, a garment that may cover a huge sin and lull the patient into a supposed security leading to blindness. It may also be noted that such cases as these make the descriptions of glaucoma in some of the text-books seem very insufficient. A very recent text-book makes glaucoma consist solely in an *increase* or abnormal degree of tension, without regard to the fact that with a highly subnormal power of resistance the process is truly glaucomatous without an abnormal elevation of tension. One cannot help wondering how frequently such cases may not be overlooked, called optic atrophy, etc.

2. *The crime, or what should be held a crime, of the optician in furnishing glasses without a physician's prescription.* The physician *may* overlook such cases, but the optician can by no possibility recognize them. We have personally known several such cases, and so no doubt has every oculist. The present case is a striking example. Had the patient, Mrs. B., three years ago consulted an ophthalmologist she would probably now have good vision instead of being blind. Instead of this she went to a popular optical firm, who if we had proper laws would not have dared to sell her glasses for glaucoma, or, if daring, would now be liable to a suit for heavy damages. Civilization demands that it should be made just as illegal and punishable to sell spectacles without a physician's prescription as it is for a pharmacist to prescribe drugs for any other disease of the human body.

MEASLES AND PHENACETIN: WHICH KILLED THE PATIENT—THE DISEASE OR THE TREATMENT?

By CHARLES E. PAGE, M.D.,
of Boston, Mass.

In reporting a case of measles which proved fatal a writer in a current medical journal prefaces the history of the case with some thoughtful speculations concerning the possibly deleterious effects, at times and under some circumstances, of the coal-tar poisons.

"It would seem," he says, "that the marvellous potency of the pharmaceutical derivatives of coal-tar, at present in such general favor, should be sufficient to arouse the responsible physician to an unusual degree of alertness as to any deleterious effects upon the human organism which, when prescribed internally, they might naturally be expected capable of producing. Taking everything into consideration," he goes on to say, "it is quite remarkable that death in certain cases has not oftener been suspected of being the culmination of their use rather than, on the other hand, that they probably exerted the effect of at least postponing the occurrence of such a dire calamity."

From a purely speculative point of view he regarded it as incredible that these drugs, in doses ordinarily recommended, should be so much less liable to produce evil than good, "were it not for the results obtained from the extensive experience in their employment," in all of which the writer concurs, except in the view that the "results obtained" give us any rational hope that these poisons are ever "less liable to produce evil than good."

"Amid the complexities of a given instance of disease," further remarks Dr. Tyler, "it is practically impossible to clearly define that which may be designated the negative action of remedies employed. Observations and experience have too often avouched the efficiency of the *vis medicatrix naturæ*, for example, to avoid the acceptance of many apparent favorable results from artificial sources in any other spirit than that of extreme skepticism."

The case cited was that of an Italian, "about thirty-two years of age, muscular and exceptionally well-nourished." The historian remarked upon "the striking resemblance the symptoms bore in many respects to those which are quoted as having been observed in poisoning by phenacetin," and he goes even further, in thinking that had the amounts employed been considerably greater the question might rationally have arisen "whether it was directly due to the complications resulting simply from the disease, to the remedy, or to a combination of the two," that death ensued. But the amount of phenacetin was so small (fifty grains with whiskey in five days) that it seemed to him incredible that the drug could have much influenced the result.

But, he states that the second five-grain dose of phenacetin on the fifteenth (the second day of sickness) reduced the fever markedly, from 103.6° to 101°, thus

exhibiting a "marvellous potency" for either evil or good. Moreover, in spite of reduced temperature, "the pulse and respiration, on the other hand, became accelerated." My criticism here is, that a drug which increases the respiration and pulse of a patient, does so by adding to the toxic condition, giving the system still more to contend with, thus forcing it to work more vigorously because of the added load, not from increased strength, which being admitted tells, of course, against such a procedure. In this case, as usually happens—indeed, as it seems to me, must always be the case, in accordance with the laws of the animal organism, whatever the apparent effects at the moment, or the happy chance which allows of restoration from disease, under mistaken treatment the organism was made to work harder while the vital forces were actually depleted, the reduced temperature being, really, evidence of this; and the final and speedy exhaustion of the patient to his death in five days, though he was a muscular man, gives further and unmistakable evidence, as it seems to me, in the same direction.

The patient was a splendid subject for water-treatment, and yet not one word is mentioned of even a cold compress over the region of the inflamed bronchi when, on the third day, "bronchitis became very evident in both lungs, and cough troublesomely aggravated." The constant changing of the cold compress over the chest in these cases (pneumonia, acute bronchitis, etc.,) operates most charmingly. By this is not meant the application of a cold towel to remain for any length of time to become a hot fomentation, but its renewal every two or three minutes in desperate cases, and kept up till the conditions are markedly improved, and returned to at any time when evidence is observed of return of the congestion. Instead of this helpful and most regular (though not popular) treatment the chest was simply anointed with camphorated oil, an expectorant directed, and quinin sulphate prescribed. Moreover, the patient was fed night and day, though he was at the start an exceptionally well-nourished patient and a promising subject for the fasting-cure; though, for that matter, it is my practice never to punish a fever patient with food, whether he be lean, stout, or medium, nor to offer any other nutriment than water, till convalescence is well established and satisfactory evidence observed—improved tongue, lowered temperature, good appetite, etc.—that the food stands a fair chance of being digested; otherwise it can serve no useful purpose, but must always prove a harmful nuisance, with absolutely no compensating effects. It tends to keep the patient's temperature up and going up, for it is so much more waste to be burned and eliminated. On the other hand, during every day of absolute fasting the toxic matters which are threatening life are reduced by about two pounds, and a few days of this sort of house-cleaning, as I have observed in innumerable instances, change the conditions so completely as to seem almost miraculous.

To quote: "At 4 A.M. of the 19th (sixth day of treatment), temperature 104°, phenacetin and whiskey were again prescribed, but failed (as will be seen) of any salutary effect. At 5 A.M. the patient was noisily delirious and uneasy." What an indication for a Brand bath, to tranquillize the patient by means of the refreshing cold water, the effect of which is to strengthen the heart, brace the entire nervous system, prevent or restore from the dreaded coma! The common plan, however, of "silencing the alarm bells, instead of doing anything to put out the fire," was pursued: "Sol. morp. sulph. (U. S. P.), one fluiddram, which small quantity it was deemed advisable to supplement an hour later with Dover's powder, six grains. At 6.30 A.M., patient tranquil, but shortly lapsed into a comatose state from which it was only possible to partially arouse him. Pupils contracted; respiration varyingly noisy or stertorous; countenance cyanosed; extremities cold. Hypodermatic of strychnin sulphate, one thirtieth of a grain, and repeated two hours later (11 A.M.). Patient had become completely comatose and reflexly insensible to puncture of hypodermatic needle. He expired at 12.40 P.M. His temperature, taken one hour previously, was 106.8°"

The only water-treatment mentioned is that "at various times during the progress of the illness the surface was carefully sponged with alcohol and water combined." The general impression, both with the profession and laity, seems to be that a little water will not harm a fever-patient if it be well diluted with alcohol.

I have undertaken the study of this case in no spirit of carping, but to emphasize what seems the inevitably harmful routine procedures employed by the great majority of physicians in similar cases, as well as their lamentable failure in studying and applying the simple, but genuine, aids to nature supplied by the great variety of water-treatments.

From the study of many cases similar to the one here recorded, in treatment and results, as well as not a few which started out in similar fashion, but which under quite contrary methods resulted in speedy convalescence and recovery, it seems altogether probable that had this robust Italian been spared the ingestion of a single poisonous drug, as well as of all food-substances, which, from lack of possible digestion and assimilation, are themselves drugs, loading the circulation with the poisonous products of fermentation; and could he have had the benefit of appropriate baths—not for the purpose of downing the temperature, by any means, but, as has been already intimated, for their invigorating effects upon the entire organism—while the fluidity of the blood was maintained by plentiful supplies of pure soft water, hot and cold, the results would have been altogether satisfactory.

867 BOYLSTON STREET.

THREE CASES OF LAMINECTOMY.

BY CLAUDE A. DUNDORE, M.D.,
OF PHILADELPHIA;
LATE FIRST ASSISTANT SURGEON, STATE HOSPITAL FOR INJURED PERSONS OF THE ANTHRACITE COAL REGIONS OF PENNSYLVANIA.

THE results of laminectomy for fractures and dislocations of the vertebræ are very uncertain, for with our present resources we are absolutely unable to determine the condition of the cord before operation; the symptoms present may be due to hemorrhage, bony pressure, or adhesions, and at times the cord may be either partially or wholly severed; yet with all the light that has been thrown on the surgery of the spine during the past ten years, we are utterly at a loss to diagnosticate the condition of the cord.

But as laminectomy, if performed aseptically, does

not shorten the patient's days, it is our imperative duty to operate, unless the patient is actually in a dying condition. The results are often disappointing (in fact, more so than statistics show, as there is a tendency to report only such cases as terminate favorably), but the patient is given a chance for improvement, with little, if any, danger of shortening his lease of life.

The following three cases, operated upon by Dr. J. C. Biddle and myself, at the State Hospital for Injured Persons, Ashland, Pa., have not been previously reported, and I publish them to complete the list of these cases operated upon at this institution.

CASE I.—Edward E., aged twenty-one years, single, residence Mahanoy City, Pa., was admitted June 17, 1889, suffering from a partial dislocation of the ninth dorsal vertebra. He had been a laborer in the mines, and while working was injured March 18, 1889, by a fall of top rock, and from that date to that of his admission had been under the care of a local physician without any sign of improvement.

At the time of his admission he weighed but ninety-eight pounds; his weight previous to the injury being one-hundred-and-forty-five pounds. He exhibited entire loss of motion in the lower extremities, with the exception of very slight movement in the toes of the left foot; sensation was almost *nil* up to the hips, above which it was normal; he had complete retention of urine, with a severe cystitis. His tongue was heavily coated, the bowels constipated, and there was marked anorexia, with considerable anemia. His temperature varied from 99° to 100° in the morning, and from 101° to 103° in the evening. The time which had elapsed since the accident precluded any attempt at reduction, and his anemic condition would not warrant a more radical method.

He was put on light, nourishing diet, iron and strychnin were given internally, and electricity was applied to the lower extremities every other day; the cystitis was treated by irrigating the bladder each day with Thiersch's solution. By August his appetite and general condition were much improved, and his weight had increased to one-hundred-and-twenty-five pounds; his temperature being 99° or less each morning, and seldom as high as 100° at night. The cystitis had entirely disappeared, and he was able, with some effort, to pass his urine without the aid of a catheter. Sensation in both extremities had slightly improved, and he was able to slightly move the toes of the right foot. This being his condition, an operation was proposed as the only means of further and permanent improvement, and to this he eagerly consented, and, accordingly, on the 25th of August the ninth dorsal vertebra was trephined.

The cord was found to be compressed and greatly congested, but there was no evidence of laceration. The laminæ and spinous processes of the eighth and ninth dorsal vertebræ were cut away, thus relieving all pressure on the cord; the wound was drained and sutured, and a plaster-of-Paris jacket applied, a hole being cut out over the wound for the purpose of changing the dressing when necessary. By September 1st union was perfect, and for the next month the patient remained in excellent condition, but without any sign of improvement as to sensation and motion. Early in October he was able to slightly move both legs, and had full control of urination; from this time on his paralysis rapidly improved; the battery was applied daily, with massage morning and evening, and in November the plaster-of-Paris jacket was removed, and he propelled himself about the ward in a rolling-chair, and shortly after was able to get about slowly on crutches. He was discharged December 23d, and when I saw him, six months later, he walked very well and without effort; he carried a cane, but this seemed to be more from habit than from necessity. At present date he weighs one-hundred-and-fifty pounds, and drives a huckster-wagon for a living, showing very little loss of motion in his lower extremities.

CASE II.—Thomas K., aged thirty-five years, married; residence, Shenandoah, Pa.; a laborer employed in the mines, was admitted May 12, 1889. On January 25th, while at work, a piece of coal weighing several hundred pounds slipped out and struck him on the back while he was stooping. He was taken home, and Dr. Biddle saw him in consultation a few hours later, and found him suffering from a fracture of the tenth dorsal vertebra, with extreme displacement, fracture of the middle third of the right femur, and of the fifth, sixth, seventh, eighth, ninth, and tenth ribs on the right side. He had complete loss both of sensation and motion below the seat of injury.

On the day of his admission the fractured femur had partially united, the ribs entirely so, and his condition being fair it was deemed advisable to operate without delay.

Upon trephining, the cord was found to be completely severed, the cut ends being almost an inch apart. Further procedure was, of course, useless, and the wound was sutured and dressed, the patient being made as comfortable as possible until the date of his death, June 12th.

CASE III.—Frank S., aged twenty years, single, residence Gilberton, Pa., by occupation a brakeman, was admitted December 20th, 1889. He had been doubled up under a train of coal cars while endeavoring to couple them, on December 16th, and when admitted had a fracture of the ninth dorsal vertebra, with total paraplegia of the lower extremities. He was operated upon the following day, and the cord was found to be severely lacerated and almost disorganized; there had been considerable hemorrhage, as was evident from the clots present in the vertebral canal and surrounding tissues. The cord and canal were washed out thoroughly, the meninges sutured in three places, the laminæ and spinous processes of the eighth, ninth, and tenth vertebræ cut away, the cavity thoroughly drained and dressed with iodoform-gauze. The wound had united by the 29th, but the patient never rallied, and died January 5th.

2012 MASTER STREET.

A CASE OF CHRONIC PURULENT OTITIS MEDIA WITH FACIAL PARALYSIS; SEQUESTRA FROM THE AUDITORY CANAL.

BY CHARLES H. BURNETT, M.D.,
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IN the following account there is presented the natural history of a neglected case of chronic purulent otitis media, since the patient had never received any treatment for her aural disease.

Mary M., twenty years old, born in Ireland, and resi-

dent in this country one year, came to the Presbyterian Hospital, July 25, 1894, for treatment of ear-disease. The patient stated that she had never had scarlet fever, but, at the age of ten years, she had measles. She had no earache nor any ear-disease at that time, but in the years subsequent to measles, whenever she took cold, she had earache and otorrhea. Three years ago, seven years after the beginning of the chronic otorrhea, she had a very severe attack of earache, and a large collection of pus formed above the auricle, which, however, discharged itself spontaneously through the ear. A year later, *i. e.*, two years ago, the patient had another attack of earache, which was followed by facial paralysis of a high degree, and which has remained unchanged ever since.

She has always worn cotton plugged in the auditory meatus, thus retaining septic matter in the ear, and promoting therein the necrotic process.

When she presented herself for treatment she showed, in addition to the facial paralysis, a large supra-auricular collection of pus extending forward beneath and beyond the line of the temporal artery, above to the limits of the squama, and behind to the upper boundary of the mastoid. Pus could *not* be pressed from this point into the tympanic cavity or auditory canal and out of the external meatus. A very dark-colored, offensive discharge came from the meatus, however, originating from the diseased tympanum and auditory canal. The latter passage was blocked with granulations, and denuded bone could be felt near its meatus. The entire region of the auricle and meatus was extremely sensitive to touch, and forbade all exploration with a probe.

The patient was etherized on July 25th, and an opening was made in the lower posterior part of the abscess-cavity, over the upper part of the mastoid. About two fluidounces of dark, thick, fetid pus then escaped from this opening. No denuded bone could be felt in the abscess-cavity by most diligent search with a probe at this or any other time. This cavity was for two weeks syringed twice daily with a solution of mercuric chlorid, 1 to 5000, and the auditory canal and middle ear were syringed with alcohol twice daily. The discharge of pus from the opening in the abscess amounted to one fluidounce daily for two weeks, but under the use of a drainage-tube, begun in the second week, the pus-cavity grew smaller, until its walls adhered and the opening over the mastoid closed.

The granulations in the auditory canal had now shrunken, and the discharge from the middle ear diminished under alcoholic syringing. A tough, fibrous polypus was now extracted from near the meatus, and with it came a curved spicula of bone. The caliber of the still-narrowed and sensitive canal was blocked by an impacted sequestrum. Under ether, on August 25th, an examination of the sensitive canal was made, and by means of Sexton's foreign-body forceps two sequestra the size of large peas were removed after rather forcible traction. These sequestra came from the region of the mastoid antrum, judging from their cancellous structure.

Denuded but firm bone was felt in all directions in the fundus of the auditory canal, after the removal of the sequestra, but this rapidly covered in, excepting a small spot on the inner wall of the tympanic cavity, and the discharge further diminished under alcoholic syringing. It is needless to say that the chronic facial paralysis remained unaltered.

In this case there is shown the natural course of a neglected chronic suppurative otitis media of ten years' duration, one-half the patient's life. Poor hygiene and septic retention from wearing cotton in the ear resulted, in the eighth year of the disease, in a severe acute attack, marking the advance of the necrotic process and producing an irremediable facial paralysis.

The rapid covering in of denuded bone by new mucoperiosteum, under antisepsis and asepsis, demonstrates that bare bone is not dead bone, and curetting the denuded surface is not necessary, but rather injurious. Dead bone will exfoliate; denuded bone in the ear should be treated like diseased mucous membrane, by antiseptics, and not with the curet.

TONSILLOLITH: AN UNUSUAL CASE AND SPECIMEN.[1]

By W. K. BUTLER, A.M., M.D.,
SURGEON-IN-CHARGE LUTHERAN EYE, EAR, AND THROAT INFIRMARY, WASHINGTON, D. C.

THE following case of tonsillolith is presented on account of the unusual size which the stone acquired before removal, and incidentally on account of a mistake in diagnosis as to its nature.

The patient, a male, twenty-six years of age, applied last August for treatment on account of "something growing in his throat," which he had noticed since the preceding fall, and which he said had been treated by the application of caustics.

Inspection showed a marked bulging of the soft palate just above the right tonsil, with sub-acute inflammation. Thinking that it might be an abscess it was cocainized and incised, when the knife struck the calculus. The incision, which was midway between the uvula and the anterior pillar, was enlarged and forceps used to withdraw the mass, but without avail, as it could not be grasped. It was then shelled out by passing the finger behind the pillars of the fauces and forcing the mass forward.

While tonsilloliths are said not to be very rare, large ones are exceptional, and the one here presented is the largest of which I have seen any record. Burnett, in his recent *System of Diseases of the Ear, Nose, and Throat*, refers to three large ones which have been reported, the largest of which measured 25 mm. long, 5 mm. thick, and 4 mm. broad. This one measures 25 mm. x 22 mm. x 18 mm. Its weight is 85 grains.

Tonsilloliths are of interest on account of the hemorrhage that sometimes occurs when they slough out, and on account of the obstruction they offer in tonsillotomy, one case having been reported in which the tonsillotome was broken by the resistance offered by a stone.

Calculi usually commence as caseous masses in a follicle of the tonsil, which on drying become hard, and may gradually increase in size by accretions.

This one shows very markedly the laminæ of growth. They are usually composed of organic matter, phosphorus, and calcium carbonate.

Dr. Samuel E. Milliken has been appointed surgeon to the Randall's Island Hospital, New York.

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1 Presented before the Medical Society of the District of Columbia, October 10, 1894.

BACTERIOLOGIC NOTE.

A NEW-CULTURE MEDIUM FOR THE BACILLUS OF DIPHTHERIA AND OTHER BACTERIA.

BY M. V. BALL, M.D.,
OF PHILADELPHIA.

THE ordinary methods in vogue for the preparation of blood-serum for bacteriologic purposes are complicated, require special and costly apparatus, and often end in failure. The separation of the serum takes several days, during which time contaminations are liable to occur; in transferring the serum so as to prevent entrance of the coloring matter of the blood the use of pipets is objectionable, and in the sterilization at low temperatures spores if present may not be destroyed, so that even under strictest precautions 10 per cent. of the tubes are expected to be lost. Blood-serum is now chiefly used for the cultivation of the diphtheria bacillus, though numerous other germs develop upon it with preference.

For diphtheria a transparent medium is not a necessity. The grayish-white colonies are more plainly visible on a dark background. Therefore, in order to obtain a culture-medium in as short a space of time as possible, and without the aid of laboratory apparatus, and upon which the bacillus of diphtheria will grow as readily as it does upon blood-serum, I use coagulated blood.

The method is as follows: The blood of an animal is collected in a sterilized jar or bottle. As soon afterward as is possible, small sterilized glass test-tubes are filled one-quarter full of the pure blood, before it has clotted, or of the colored fluid portion which has separated if clotting has already begun. The tubes are then placed in a slanting position (a small tin box can easily be constructed for this purpose or improvised so that the tubes will lie nearly horizontal) in a water-bath, and slowly heated until the water in the bath is boiling; the boiling should be continued for ten minutes or more, until the blood has coagulated and become solid. It then has a chocolate color and a moist-appearing surface, upon which a stroke-culture can be made. From a pure culture of the diphtheria-bacillus on agar an abundant growth was visible on the blood coagulum in fifteen hours. It was sufficient to diagnosticate in ten hours. If the tubes are to be kept for any length of time they can be sterilized two or three times at a temperature of 85° C. without injuring the medium.

The preferable temperature for the diphtheria-bacillus is that of the animal body, from 36 to 37° C. As incubators are seldom found outside of the laboratory, and are expensive, a practical and simple way to insure this constant temperature is to place the inoculated tube in a wooden case or other receptacle (to prevent breakage), and keep it in close contact with the human body itself, in the pocket of a patient's night-shirt for instance, or the physician might carry it in his inside vest pocket. This method of incubation has been described before, but it has never been put into practical operation as far as I can ascertain.

The use of blood coagulum, I believe, is original with me. Other bacteria will grow on it, and I am now making cultures of the tubercle-bacilli which have not yet had time to develop. If no new objections arise it will be the most practical of all culture media, requiring the least time in preparation, the fewest materials, and only such apparatus as every household can supply; while for pathogenic bacteria it is the most natural soil, and one well suited for growth. With few exceptions the dark color of the medium brings out the colonies in strong relief, so that they are at once apparent. I suggest the name *nutrient blood-coagulum* for this bacterial medium.

MEDICAL PROGRESS.

A Case of Cystinuria.—HALL (*Quarterly Medical Journal*, vol. iii, part 1, p. 26) has reported the case of a miner, thirty-two years old, who complained of lumbar pains and of having passed stones; but examination with a sound failed to disclose the presence of a calculus in the bladder. The man was of good habits and had lived in the same locality for eighteen years. He had suffered a good deal from sick headache. Ten years before coming under observation he had an attack of what was called pleurisy on the right side, in the course of which he passed a stone the size of a pea. Subsequently he began to suffer from pain in the back on both sides, and twelve months later passed another small stone, which caused much pain. After this he passed various-sized stones every year, more in the spring than at other times; the largest number was four in one day and fourteen in one month. The largest stone was passed a few years before the man came under observation, when he lost also about a pint of blood. The last stone had been passed seven months previously. The pain radiated from the back to the testicles, causing in these a sense of heaviness. From time to time attacks of colic occurred. The urine was clear and high-colored, and deposited a sediment. There was tenderness on pressure over the loins, and well-marked cutaneous hyperesthesia in the middle line from the twelfth dorsal to the third lumbar spine, and passing from this outward in a somewhat triangular shape and ending at the midaxillary line. On the right side in front there were one or two spots of hyperesthesia over the anterior superior spine of the ilium; and on the left one or two spots somewhat higher, also over Poupart's ligament as far as the external abdominal ring.

The patient brought with him seven calculi which he had passed by the urethra at different times. The largest measured half an inch by a quarter of an inch. It was ovoid in shape, of a honey-yellow color, with sparkling crystalline surface; on fracture it presented a yellow, powdery appearance. The other stones were quite small, three being facetted. The calculi were insoluble in water and soluble in ammonia and also in nitric acid. On evaporation large hexagonal crystals of cystin remained, together with rhombic prisms arranged in star-shapedclusters. The urine was alkaline in reaction, and contained neither albumin nor sugar. It deposited a copious sediment consisting of phosphates, together with small round masses with radiating lines not soluble in acid, but disappearing with heat. These latter were believed to be ammonium urate. For a few days the patient was not placed upon treatment, in order that a study of the urine might be made. The quantity passed varied between 40 and 58¼ ounces in twenty-four hours. On several occasions cystin-crystals were found.

Alkaline treatment was then instituted and continued for seven weeks. This consisted in the administration of a combination consisting of potassium bicarbonate 12 drams, citric acid 8 drams 24 grains, and water 12 ounces, of which an ounce was taken in water every three hours. During this time the daily quantity of urine averaged 69.7 ounces. The patient felt much better and suffered much less pain. Throughout this whole period no crystals of cystin could be found, though frequent examination of the urine was made, but as soon as the treatment was suspended the crystals appeared. The patient was dismissed and advised to continue the alkaline medication, but he disappeared from observation.

Successful Celiotomy for Incised Wounds of Liver and Stomach.—BECK (*Deutsche medicin. Wochenschr.*, No. 39, p. 759) has reported the case of a youth, seventeen years old, who in the course of a quarrel received a stab-wound with a knife in the left hypochondrium. The injured man managed to walk a short distance, but finally fell. The wound was closed by means of silk sutures, but the occurrence of vomiting of the contents of the stomach and of blood in considerable quantities necessitated reopening and enlargement of the wound and a search for the source of hemorrhage. The man presented a condition of acute anemia, so that it became necessary to introduce more than a pint of a 0.6 per cent. sodium-chlorid solution into the basilic vein. After the hemorrhage had been controlled by packing the abdomen with gauze, the latter was carefully removed, and it was found that the bleeding issued from a wound in the liver and from a divided artery of the mucous membrane of the stomach. The wound in the liver was closed by means of deep sutures, and that in the stomach by separate suture of the mucosa and serosa. These means sufficed also to control the hemorrhage. The peritoneal cavity was irrigated with a 0.6 per cent. sodium-chlorid solution, and a tampon of iodoform-gauze was introduced between the liver and the stomach. The abdominal wound was closed and an aseptic dressing applied. The post-operative course of the case was uneventful, the tampon being removed on the third day. For a week nutriment was administered by enema; in the second week liquid food was given by the mouth. A small fistula appeared at the site of the tampon, but closed after the extrusion of some of the suture-material used in uniting the wound in the liver. In the course of eight weeks the patient was perfectly well and able to resume his former work and mode of life. To protect the cicatrix he was instructed to wear a soft, elastic bandage.

Physiologic Rest in the Treatment of Prolapse of the Rectum.—BRYANT (*Mathews' Medical Quarterly*, vol. i, p. 513, No. 4), concludes an article upon the treatment of prolapse of the rectum with the following propositions:

The proper performance of the physiologic functions of the rectum contribute greatly to the advancement of rectal disease and to the sufferings of the afflicted.

The complete vicarious discharge of the feces through an artificial anus located in the sigmoid flexure reduces to a minimum the physiologic demands on each structure of the rectum.

The lessening of the physiologic requirements is commonly in direct proportion to the diminution of the fecal flow through the rectum.

The cessation or lessening of the fecal discharge *per rectum* exercises a palliative and curative influence on diseases of the rectum.

In certain cases of obstinate rectal prolapse the formation of a vicarious channel for fecal discharge is justifiable, both as a palliative and curative measure.

The preliminary establishment of such a channel for the purpose of cleanliness and the prevention of infection is justifiable in many grave operations for prolapse of the rectum.

The dangers attendant on the formation of an inguinal anus are much less than those invited by the contact of fecal discharges with large operative surfaces of the rectum.

When cure takes place great care must be exercised thereafter, otherwise the prolapse will return.

The Treatment of Fractures in Children.—LEBLOIS (*Thèse de Paris*, 1894; *Centralbl. f. Chir.*, 1894, No. 38, p. 900) concludes a study of fractures in children and their treatment as follows: Fractures in young persons differ from those in adults by the frequency of their seat at the junction of the epiphysis with the shaft, the preservation of the periosteum and the rapidity of union. This last fact is due to the greater activity of the elements that participate in the reparation of bony tissue. Frequently an excess of this process gives rise to the formation of an undue amount of callus. Such a hyperplasia in the case of fractures about the joints may result in interference with the restoration of normal mobility. Protracted immobilization must be carefully avoided in the treatment of fractures about joints, and should give way to massage and early passive movement. The treatment of fractures in children by these methods is in most cases attended with excellent results, both as to the speediness of recovery and the restoration of function.

THERAPEUTIC NOTES.

The Therapeutic Value of Ice in Ophthalmic Surgery.—MCGILLIVRAY (*Ophthalmic Review*, vol. xiii, No. 155, p. 294) commends the topical employment of cold in ophthalmic surgery. In case of recent injury to the eyeball the eye is bathed with a sublimate solution (1 : 5000), the patient is put to bed and instructed not to open his eyelids, and ice-compresses are applied immediately and continuously. If, after a day or two, no inflammatory reaction has set in, the compresses are withheld. In cases attended with inflammation, the application is continued till the process has subsided. Each compress is removed as soon as it begins to lose its cold feeling, and a fresh one is applied.

For Bronchorrhea.—

℞.—Copaibæ	. . . . .	℥iij.
Spiritus chloroformi	. . .	f ℥j.
Mucilaginis acaciæ	. . .	f ℥vij.
Liquoris potassæ	. . .	f ℥j.
Aquæ cinnamomi	. q. s. ad.	f ℥viij.

Misce et fiat mistura.

S.—Teaspoonful three times daily.

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SATURDAY, NOVEMBER 24, 1894.

ENGLISH AND AMERICAN TEACHING OF MEDICINE.

WE have received a courteous letter from a great teacher of medicine in the United States, calling our attention to an inaccuracy in our report of the number of students of medicine in England, published in a comment in THE MEDICAL NEWS of November 3d. This error, which we regret, consisted in quoting as the total number of such students (552) in England what should have been given as the number in the metropolitan or London schools. With a population, for example, five times as great, London has about one-fifth the number of medical students as Philadelphia.

Our correspondent further avers the commanding excellence of the English teacher of medicine, and cites many examples to prove the contrary of our contention. In reply we would say that opinions on such subjects must of course differ with the standpoint of the questioner, and that a few or a number of noteworthy exceptions may not change the general truth of a large proposition.

But our critic is more contemptuous of our advice to the American medical student to first exhaust the opportunities of his own country before going abroad. The *British Medical Journal* cannot, surely, be charged with a bias toward our view, and from the editorial columns of that journal, October 13, 1894, we make the following extract. The leader is entitled:

THE BITTER CRY OF LONDON AS A TEACHING MEDICAL CENTER.—The failure of London to attract foreign medical students is at the present day conspicuous and growing. When we read that the 20 medical faculties in Germany numbered among their students no fewer than 3507 foreigners out of a total of 8012, during the last summer session, there is surely room for inquiry why London—with a clinical field so enormous—should number its foreign students by units, while the German universities count them by hundreds. In fact, at some German universities foreigners are in excess of the natives.

There are, no doubt, many reasons for this state of things, and it is difficult to appreciate precisely the weight which should be given to each. Something is due, no doubt, to the bare manner in which the teaching in the London schools is directed to meet the requirements of examining boards. Everything is subordinated to getting the average man through his pass examination, and not a little to cramming the laggards up to a point which will enable them to "satisfy the examiners." There are no endowments; there is no university teaching; the voice of the researcher in London is as of one crying in the wilderness, and overpowered by the howls of the half-penny newspapers, whose phenomenal ignorance is made poisonous with calumny. Another but related reason is the want of facilities and opportunities for clinical research, using that term in the widest sense. Where are we to look for well-organized clinical departments, with adequately fitted clinical laboratories, for the chemical and bacteriological study of cases? The examination of cases at the bedside, which was the watchword of the great school of medicine in England in the middle of this century, needs now to be supplemented by careful laboratory-investigations, and facilities for these must be provided if this country is to continue to hold a leading place as a medical center. A medical center is not merely a place where so many hundred students are turned out to a pattern every year, but a center where the higher, so-called "post-graduate," instruction is given by men of wide experience or special training, thoroughly acquainted with every advance, and where the advanced student can receive the guidance and direction which he requires. The medical journals published in America contain about this time of the year many letters from American visitors to Europe relating their impressions of the medical schools. The criticisms on London are all more or less to the same effect. "There are too many medical subcenters, with no inclination toward centralization," writes a correspondent to the *Occidental Medical Times*. "The distances between the educational institutions are so great that the post-graduate courses in medicine are very poorly attended." He agrees with others of his compatriots that the American student who wants advanced courses will do better in New York. In New York, indeed, the post-graduate classes have reached a high pitch of organization, and possess an immense building which is college and hospital in one. In Vienna, in Berlin, and in other German

centers the foreign student is able to attend courses in special clinical departments conducted by junior members of the teaching staff of the university; and it must be remembered that any graduate who can show reasonable credentials can obtain the status of *Privat-docent*, and as such can claim certain facilities for the use of laboratories and museums for teaching purposes. Teaching there is a profession. The university and the institutes of biology, pathology, and pharmacology are furnished by the State. The professors are chosen almost without exception from the ranks of these young men, who have won their spurs as *Privat-docenten*. There is a greater freedom of inter-university communication, the student and the teacher can, and does, pass from one to the other, and the universities vie with each other in providing the most complete laboratory-accommodation. It is, indeed, an astonishing thing to see the magnificent institutes for pathology, for hygiene, and for clinical medicine, which exist in even the minor German centers, and to turn to London, which in these respects is a by-word among the nations. There is no great medical school in London which has anything to compare with them, and of any great central institution London has nothing to show beyond the laboratories of the Conjoint Board on the Embankment—an institution well enough in its way, but not available for education, and one which, when compared to the immensity of London and its wealth, rather evidences a want than fills it.

The movement for a real university in and for London had its origin, and draws most of its strength, from the schools engaged in what we may call "primary" medical education. The grievous disadvantages which London students labor under, owing to the want of reasonable facilities for obtaining a university degree, is the most glaring defect, due to our want of centralization and the play allowed to conflicting individualism.

The State which gives nothing can, of course, exercise no control, for it has no control, and so royal commissions come and go and leave not a wrack behind. The elements of a university exist, but not the university.

Now it may possibly be contended that this refers mostly to a comparison of English and Continental teaching, and not so much to American as compared with foreign teaching. Of one thing, however, there can be no doubt, it settles the question of the relative value of English and Continental teaching. If the American student is to seek other lands for medical study it is certainly not to London that he will go, but to Germany. But another fact is equally incontrovertible, viz., that instruction in Germany is dependent upon a practical knowledge of the German language. Now, how many American students can afford to spend one or two years in first acquiring such a useful knowledge of German, and then can spend one or two more years in learning medicine in that language?

Not one in a thousand! Nothing is more useless and wasteful than the attempt of Americans without a knowledge of German to go to Germany for a year in order to study medicine. How many thousands now regret having so wasted time and money on the intricacies of "gehabt haben werden" and the Teutonic grammar? "He has studied abroad" may help to advertise the young doctor, with a certain class of desired patients, but only the born-advertiser wishes such helps. For the few who can spend several years in Germany, after they have by previous years of study at home exhausted the opportunities here, it is doubtless wise, and most wise, for them to learn what Germany has to teach. It was not to these few we suggested our advice; it was to the many, the vast majority, indeed, who can give but a few months, a year, or possibly a little more, to post-graduate study. Our own custom, unless in some wretched exceptions, of encouraging instead of discouraging young teachers, of multiplying the laboratories, quizzes, seminars, etc., distinctly ally our methods to those of successful Germany rather than to those of unsuccessful England. We still believe that, as a rule, it is good advice to our young men to stay at home and to utilize the splendid advantages offered by many great medical centers in the United States. These advantages, if not quite commensurate in some respects with those of Germany, will with a little patriotic encouragement quickly rise, after the true American habit and fashion, to meet all the demands made upon them. We see no objection to patriotism when it is true and justifiable and when it is to the advantage of scientific progress.

It strikes us, moreover, as somewhat illogical for a teacher in an American post-graduate medical school to earnestly advise all American post-graduates to study medicine abroad.

We have only indicated some of the reasons for the faith that is in us. We have not alluded to the often-noticed fact that long residence abroad by no means best fits a man for success in the daily practice of medicine here. Not a few examples could be adduced to show that it rather unfits him. In certain specialties we are certainly in advance of European custom. The theory of medicine may possibly be as well or even better learned there. A literary physician may, perhaps, be better outfitted there; most certainly the laboratory physician, and the teacher. We do not advise such. They will follow their own good wisdom. There is yet another disadvantage the student will find when he settles at home after his studies abroad. If, as is probable, he uses here his possibly acquired habits

of brutality toward dispensary and poor patients, he will find himself avoided and "stranded"—and justly so.

AN HYSTERICAL ARM IN COURT.

In a court of justice not far from Philadelphia a suit for damages was fought and won recently, based upon the following circumstances: A young man, walking along a boardwalk at a seaside-resort on a wet day, received a shock from a current of electricity which passed from a low-hanging arc-lamp along his umbrella-handle, the tip of which had come accidentally in contact with the lamp. The damage claimed to have been done was to the arm, which had remained paralyzed for months. The general health was unaffected. It was shown that at the time of the accident the man fell in a fit, which lasted for a long time, during which it was necessary for several men to hold him.

At the trial the arm presented an exceedingly bad appearance. It was totally paralyzed from the shoulder down, and hung limp and flail-like at the side. It was *uniformly* affected, *i. e.*, not only one or a few groups of muscles were paralyzed, as is the case usually from local trauma, but all the muscles of the shoulder, arm, forearm and hand were equally and completely involved. Hence the affection was a monoplegia, and had the features of a *central* instead of a peripheral palsy. The claimant, when he wished to move the arm, took hold of it with his sound hand and swung it about as an inert and lifeless object. There were no contractures, but the hand and forearm were cold, and markedly edematous and blue. The skin was and had been uninjured. The man had been treated in the surgical clinic of a large hospital, because for some reason his case had been regarded erroneously as a surgical one. At the trial an effort was made, of course, to present the injured arm in as unfavorable a light as possible for recovery: it was even intimated to the jury that the nervous and muscular tissue had been "disorganized" by the electric current, and, consequently, that the patient could not recover. Several physicians, including the surgeon, gave testimony, but they did not attempt the formulation of a scientific diagnosis.

On the other hand, the electric company called a medical witness who demonstrated in open court, where alone he had the privilege of examining the claimant, that the neuro-muscular apparatus was not injured permanently. This he did by the use of a faradic battery. Demanding that the patient should be stripped (a demand that was firmly but unsuccessfully resisted by the claimant's counsel), this physician showed that the muscular nutrition was good, and that all the muscles responded actively to the current. He explained to the jury, which was not an intelligent one, that when nerves and muscles are destroyed or "disorganized" the muscles waste, and that among the very first symptoms shown by them is a failure to respond to the faradic current. He explained also that the blue and swollen appearance of the hand and arm is a sign frequently seen in functional, *i. e.*, hysterical palsies.

The jury, as was expected, rendered a verdict for the claimant, and gave him $5000.

The hysterical stigmata in this case were unmistakable. The complete monoplegia, the blue edema, so well described by French writers, the preservation of muscular nutrition and faradic contractility, and the occurrence of an hystero-epileptic seizure at or about the time of the accident, marked the case indelibly. It is more than probable that the arm was anesthetic, presenting the gauntlet, or segmental, type of anesthesia, but this was not tested in court for fear that, if discovered, its effects upon the minds of the jury might be still more disastrous to the case of the company.

This case raises several important questions: First, does a powerful shock of electricity ever leave a permanent injury to nerve-tissue in cases in which it does not kill? In other words, could an electric current expend its force in such a strictly local way as to destroy the neuro-muscular apparatus in a man's arm, sparing the skin,and yet not kill the man? We are not familiar with any such instance. The foregoing case certainly was not one. In such an instance the local traumatic effect would be destructive, and the arm would present symptoms of organic change, such as wasting and the reactions of degeneration. It seems almost inconceivable that a current capable of doing this much local injury should spare the victim's life. Shocks from electricity are now becoming common accidents, and if they can leave permanent, or even enduring, peripheral nerve-changes the fact should soon be making itself evident. The impression is that if the shock does not kill it does not permanently injure. On the other hand, electric shocks, as strokes of lightning, have long been known to be exciting causes of hysteria.

Second, is not a patient suffering from traumatic

hysteria entitled to damages? It seems too often to be rather implied that an hysterical patient is a fraud, and that he or she is entitled to nothing but contumely. This is neither a scientific nor a humane view. The hysteric is *never* a malingerer. His disease is one of the most genuine in nature, and one of the most difficult to simulate. This young man, with his palsied, blue, and edematous arm, had probably never heard of the school of La Salpêtrière, nor had ever read any French effusions in iconography. Yet his arm was strictly according to the type. If he had lost his arm there could have been no question as to his rights. Why then should there have been a question when he had lost *the use* of his arm?

Finally, why are such cases regarded as surgical? In the Paris hospitals it has been found that hysteria is more prevalent among men than among women, and this preponderance is due largely to *trauma* and to alcohol. The Philadelphia hospitals would probably give equally striking results, especially if the surgical wards were searched. But are these cases properly treated, or is their true nature even recognized, in the surgical wards?

EDITORIAL COMMENTS.

The Patent-medicine Disgrace, rampant in the United States, and discouraged and forbidden by foreign governments, proves better than anything else the semi-barbarism of our American civilization. In Germany a nostrum-maker was recently fined $500 for advertising that his "Beard Promoter" was an infallible article for producing a beard. It was tried, proved to be a failure, and the suit was brought and won. Why cannot similar methods be pursued in our country against the horde of wretches who feed upon the gullibility of the public?

Not long since the millionaires who spend millions of dollars in newspaper-advertisements met in New York to celebrate the success of their methods and to elaborate plans for a still greater share of the wealth of the poor. The newspapers are friends of their friends, and gave pages gratis to reporting their doings and publishing their portraits. It seems that a million dollars a year is not an uncommon amount for a single firm to spend in advertisements. We learn that a bill has been introduced into the House of Representatives having for its object the suppression of these advertisements. We wish it might pass, but we have no idea that it will.

And what ludicrous and wretched stuff is the substance of these advertisements, and how they enable otherwise worthless newspapers to continue their useless existence! There is one infallible test of the trashiness and venality of a newspaper. Its reports of news will be unreliable; its choice of news will be vile; its politics will be purchasable or violently partisan, just in proportion as its columns are filled with this greedy, crazy patent-medicine filth.

In England in 1860 the government taxed these concoctions $218,000, and the amount gradually rose till in 1892 it was over $1,200,000, an increase of over 600 per cent. The last sum represents an annual sale of nearly 38,500,000 packages. Think of the hogsheads of this stuff that the English people have poured down their throats! But what immeasurably greater quantities our own people are guzzling every year! Instead of taxing this traffic, if we cannot root it out, we prefer to encourage it, encourage the secrecy of it, give its millionaire owners the protection of the government, nay, let them make our laws, and never a medical society raises its voice or hires an attorney to set some limit to its swinish disease-producing impudence.

Pathogenic Lectures on Hygiene and Medicine.—The world-old difficulty of practising what one preaches is daily illustrated in the unhygienic conditions of the rooms in which lectures or public meetings are held. Since we attended lectures in Germany it may have been that a stray gleam of practical common sense as regards ventilation may have penetrated the atrocious hygienic barbarism of that otherwise civilized land, but we wonder if to-day the lecture-rooms there are as foul and filled with nauseating stenches as formerly. In our country of to-day the theater and public lecture-room not controlled by any hygienic authority but solely by financial interests are often better ventilated apartments than the rooms wherein are held lectures on medicine and hygiene. We have in very recent times attended lectures on biology where the air was deadly to living things and the mind stupefied by the non-oxygenation of the blood. Of what use is it to have only theoretic knowledge if no application of it is to be made? Why teach by word-of-mouth the righteousness of sanitation and illustrate the hypocrisy of the teacher and the valuelessness of the teaching by the unrighteousness of a fetid atmosphere? Why teach the laws of the oxidation and circulation of the blood while hundreds of furious gas-jets are competing with hundreds of hungry lungs for air to use, and also into which to throw the poisonous products of oxidation? Why teach the laws of optics and the physiology of vision whilst the retinæ of all listeners are shamelessly abused and injured by the unshaded, flickering, naked flames of gas-jets, fed with poor gas, at which gas-lights one must stare if the speaker is to be seen or even if the eyes are to be opened at all. It would appear to be a duty of those responsible to endeavor not to kill while teaching the duty of curing, to not create pathologic "specimens" while lecturing upon the sad results of pathologic study, and in the very act of seeking out the causes of certain afflictions of mankind not to encourage other pathogenic conditions.

The Specificity of the Cholera-bacillus.—If incontrovertible proof of the specificity of the cholera-bacillus of Koch were wanting it would be furnished by cases of accidental infection in the laboratory. Such a case occurred several years ago in the Hygienic Institute at Berlin, fortunately with a favorable outcome. A parallel case, but ending fatally, has recently been reported by REINCKE (*Deutsche medicin Wochenschr.*, 1894, No. 41, p. 795). The case was that of a medical man, who, while engaged in investigations of suspected

cholera-water in the Hygienic Institute of Hamburg, was seized with diarrhea and vomiting, passing into an asphyxic condition, out of which he could not be brought, and to which he finally succumbed. That infection took place in the laboratory there was no doubt, although the precise mode of occurrence could not be unequivocally established. The accuracy of the diagnosis was confirmed by the presence of cholera-bacilli in the stools during life, and in the intestinal contents after death. A single case of this kind has more weight as to the specific powers of a given micro-organism than no end of negative evidence. It should also carry with it the admonition of care to be exercised in the manipulation of pathogenic microorganisms in demonstrations and investigations.

The Trolley-gong Nuisance.—In introducing swift-moving trolley-cars it was perhaps necessary that danger should be averted by the ear-splitting gong. It is now a question whether the health of more people is not injured and their deaths hastened, so that the slow deaths are more numerous and indirect injury is much greater than the quick deaths and the direct injuries from running over a few people. The point of the matter consists, however, in the fact that the companies cannot be sued for damages in case of the slow deaths, whilst it costs money to run over and kill people at once. It is the infernal ringing of the gong at nights, on Sundays, and in empty streets, of which we chiefly complain. Why is this mechanical, indiscriminating, stupid nuisance permitted? On Sunday morning, when a poor exhausted worker tries to make up for overwork and for the loss of sleep occasioned by the unearthly noises of six days and nights of bedlam—on the early Sunday morning, when the streets are empty and there is not even a stray cat to run over, why must these gongs be thundered and banged to the banishment of all sleep and rest of thousands of people? It is an outrage our people should not submit to!

From Across the Ocean.—Our readers will remember the interesting article of Dr. Warthin on some physiologic effects of music in hypnotized subjects, published in The Medical News of July 28, 1894. The facts brought out by Dr. Warthin really opened up a new field of psychologic investigation, and we were glad to present the study in our columns. Now, after some months, Continental scientists are repeating and Continental journals are reporting the facts of Dr. Warthin's study, and all as if discovered by them, and of course without a word of credit to The Medical News. The echoes are even returning to our country, and the novel investigations are described as if, like all other good things, they came from the East. How hard it is to get our people to recognize the things they have to be proud of, and how proud they are of some things that it were better to be silent about. Our ingenuity and mechanical inventiveness are acknowledged everywhere, but we are so accustomed to receive our science from the East that we ignore the splendid scientific advances made by the American mind, and do not get the credit from the world of the noble scientific spirit that is alive amongst us, and that in many fields is producing most noteworthy results.

Poor Food in Asylums.—That deficient nutritive value in food supplied to the inmates of hospitals and asylums must interfere with satisfactory treatment of them need not be argued. Doubtless there is a wide field for original investigation as to the influence of diet upon insane and otherwise defective patients. So much distressing evidence of municipal corruption has been exposed lately in the New York investigation that we are not surprised to learn that Dr. Austin Flint has denounced before the State Commission on Lunacy the adulteration of food supplied to some of the asylums for the insane. He pointed out among other things that chicory was mixed in the coffee, and that bad tea was used. He also said that the quantity of food is often insufficient.

A comprehensive investigation into the food-supply of public institutions would yield some surprising results. The use of oleomargarin is not infrequent, although it is doubtless billed as butter, and real butter is furnished for the officers' tables.

Electric Purification of Water—Droun has lately investigated the purification of water by electricity and finds that the method is efficient, but applicable rather to sewage than to water-supply. The purifying action depends on the formation of sodium hypochlorite (chlorated soda U. S. P.), which is an excellent germicide. Much nonsense has, of course, been uttered in regard to the use of electricity as a disinfectant, and terms as "electrozone," "electro-saline solution," etc., are suggested by inventors and promoted by sensational newspaper-reports, but the question of the applicability is merely one of expense and convenience, as the active agent, sodium hypochlorité, is an article of commerce. One objection to chemic purification of sewage, even when the chemicals used are not poisonous, is that all microbes are killed and the cycle of changes in the organic matter is interrupted.

REVIEWS.

A Dictionary of Medicine, Including General Pathology, General Therapeutics, Hygiene, and the Diseases of Women and Children. By Various Writers. Edited by Richard Quain, Bart., M. D. Lond., LL.D. Ed., F. R. S., Assisted by Frederick Thomas Roberts, M.D. Lond., B. Sc., and J. Mitchell Bruce, M A Abdn., M.D. Lond. With an Appendix by Samuel Treat Armstrong, M.D, Ph.D. New edition, revised throughout and enlarged; 2 vols. New York: D. Appleton & Co., 1894.

The first edition of this standard, one might say classic, encyclopedia of medicine was issued in 1882, and, according to the preface, there have been issued more than 33,000 copies since that time. The first edition contained 1834 pages; the present, 2518; and 43 new illustrations have been added. The illustrations might often have been better, and certainly still many more might have been added with much advantage to the reader and without too greatly increasing the size of the volumes.

No one, in view of the tremendous progress of med-

icine in the last twelve years, will dispute the need of such a complete revision and of such large additions as are now made. In the limits to which we are restricted it is manifestly absurd to attempt any detailed description or criticism of this splendid work. As to description, every reading medical man knows well enough its general scope and plan. The term "dictionary" is an unfortunate one, as it misleads. In the usually-accepted meaning of the term it is neither a dictionary, nor a lexicon, nor a word-book, except in the sense that the articles are arranged alphabetically. Many thousands of dictionary-words are omitted altogether. The etymology of words is sometimes briefly given, but very often not, and the philologic and defining aspect is (rightly enough, considering that the book is *not* a dictionary) quite thoroughly ignored. The work is an encyclopedia of medicine and allied sciences, and undoubtedly the best one in the English language.

As to criticism, the mention of a dozen or two minor points we have noticed would seem hypercritical and useless. We have no wish to indulge in the crime of criticasters and give praise in one line of glittering generality and then write a hundred lines of exaggerated and emphasized carping. Such books as this involve years of life-wasting labor. A thousand hours of conscientious searching and drudgery and intellectual toil of the most painstaking kind too often pass with the reviewer unthought of and unpraised, while a few inevitable errors, omissions, or typographic blunders are pounced upon to show the critic's omniscience and superiority.

It is noteworthy that science nowadays is advancing so rapidly that an encyclopedic work like this, dated 1894, contains not a line or word as to the antitoxin-treatment of diphtheria. How old are our youngest books! Enzymes, ferments, and fermentation, etc., are also omitted. Dr. Stevens will never forgive the authors, we fear, for omitting all mention of exophoria—all the 'phorias—graduated tenotomy, etc.

We cannot forbear also to add a word about the old, old story of English illogicality as to orthography. It is an amusing and characteristically English sin to abuse the deplorable ignorance displayed in "American" iconoclastic spelling, and in doing so display a profundity of ignorance of the very a, b, c of etymology and philology. Thus, as in this work, we have, of course, a clinging for dear life to some of the ancient ways, as in *hæmorrhage*, *diarrhœa*, *ætiology*, *œdema*, etc., but we find *gangrene* instead of gangræne ("γραίνω"), *hemianopia* instead of *hemianopsia* (though quoted as derived from ὤψ—a typographic error makes it ἀψ), etc. The writer escapes inevitable criticism in omitting the derivation of *thyroid*. If he had quoted the Greek origin and still written *thyroid* instead of *thyreoid* (the correct form), he still would have been doubly guilty of etymologic crime. The etymology of diphtheria is given, and yet the adjectival form *diphtheritic* is used instead of the more proper and shorter form *diphtheric*. The authors will receive the gratitude of Dr. Greenhill and Mr. Tweedy for espousing their cause and heightening the wretched confusion as to the meanings of the words *hemeralopia* and *nyctalopia*, two words that henceforth must be banished from scientific usage.

The American supplements add to the value of the work. We are glad to notice the generous and just praise accorded to the assistant editors, Drs. Roberts, Bruce, and Harold, for their most important share in bringing out the volumes. We trust American students will show a hearty appreciation of this great work.

A Practical Treatise on Orthopedic Surgery. Designed for the Use of Students and Practitioners. By James K. Young, M.D., Instructor in Orthopedic Surgery, University of Pennsylvania, etc. Illustrated with 285 woodcuts. Philadelphia: Lea Brothers & Co., 1894

The frequency with which text-books and brochures on orthopedic surgery and allied subjects come from the press is a gratifying testimonial to the interest in this important branch of surgery. Very few text-books on general surgery deal satisfactorily with deformities and diseases of the joints. The chapters devoted to orthopedics are usually brief abstracts gleaned from literature.

The present volume is certainly a credit, not only to the publishers, who always bring out books in excellent shape, but to the author as well, who has been known for a long time as a thorough, painstaking, conscientious student in this neglected branch of surgery.

His classification in Chapter I is commendable, and will certainly be regarded as standard. In studying the different chapters one is impressed with the thoroughness of the work, and it is difficult to bring against the author any charge of one-sidedness or of neglect of the teachings in current literature. The illustrations are sufficiently numerous to make the book thoroughly practical. The criticism might be offered that a certain number are taken from text-books in general surgery and in neurology, and might better be replaced with illustrations more to the point. Yet it is difficult to secure adequate illustrations, and the temptation of the publisher to make use of cuts already in stock sometimes overrides the wishes of the author. The style is clear and the chapters are well arranged.

Taking up the subjects more in detail, one finds that the lines of treatment which are still *sub-judice* are not urged dogmatically, but in a modest way that leaves the student free from any temptation to adopt such procedures.

The author's teachings in the use of plaster-of-Paris are not quite up to date, simply because he is not an ardent advocate of this method, and hence is not expected to be thoroughly familiar with the details that in many hands contribute to a success which he has not attained.

In treating of knee-joint diseases he has made a very careful study of the subject, and one can detect a more thorough knowledge of statistics furnished by some of our German authorities than he would get from a personal study of a large number of cases under his own observation.

In the chapter on lateral curvature of the spine there is a lack of dogmatic teaching which is probably pardonable. The author states the various methods fairly, yet his own recommendations are in the line of medical gymnastics. The various forms of apparatus for crowding the ribs into better position are abundantly illustrated.

In the chapter on infantile spinal paralysis the space given to the faradic and galvanic reactions may not be unduly criticised, yet one hardly expects in a work on orthopedic surgery so much neurologic material, and

is likely to question the propriety of the value placed upon electricity. The prognosis given is sufficiently guarded, but when he comes to treatment and says, "The treatment will depend upon the stage or period during which the disease is seen," one understands that the author has not had a very large experience in the management of this affection, which is accompanied by so many deformities that come within the scope of the orthopedic surgeon. Still, the medical treatment given is to be commended. In like manner his advocacy of mechanical appliances that will protect joints and prevent straining of ligaments unsupported by muscles is certainly worthy of admiration.

The foregoing criticisms are not meant in any way to detract from the value of the book as a whole, and the author is to be congratulated most heartily on the presentation of a work so free from injudicious advice and so full of practical suggestions.

Transactions of the Southern Surgical and Gynecological Association. Vol. VI, Sixth Session, held at New Orleans, La., November 14, 15, and 16, 1893. 8vo., pp. 392. Published by the Association. Philadelphia: W. J. Dornan, 1894.

This handsome volume, while it affords evidence of the activity and earnestness of the body from which it emanates, can scarcely be regarded as an important contribution to surgical literature. Besides the Annual Address of the President, and a eulogy of Ephraim McDowell, by Dr. McMurtry, of Louisville, it contains twenty-nine papers on scientific subjects, most of which would appear to have evoked free discussion. None of these essays is of very high grade. Perhaps the best is one entitled "Intra-cranial Neurectomy and Removal of the Gasserian Ganglion for Intractable Neuralgia," with a report of four cases, by Dr. Tiffany, of Baltimore. Dr. Hunter McGuire, of Richmond, Va., gives a very brief but interesting account of a case of tuberculous disease of the urinary bladder, in which great relief was afforded by supra-pubic cystotomy. A paper by Dr. Parham, of New Orleans, on the bloodless or "skewer" method of hip-joint amputation, would have been far more valuable had the author given the references to the original accounts of all the forty cases collected by him. Dr. Briggs, of Nashville, Tenn., recording his personal experience in the operative treatment of vesical calculus, speaks very highly of the medio-bilateral perineal section, except in cases of large and hard calculi, when the supra-pubic route may be chosen, or in those adapted for litholapaxy. Without questioning the successes claimed by this well-known surgeon, we cannot but think that the simpler procedures are to be preferred; that in the hands of the average operator supra-pubic section is safer than either of the perineal methods. This seems also to have been the view taken by those who discussed Dr. Briggs' paper.

Of the gynecologic essays, the most important is by Dr. Engelmann, of St. Louis, in advocacy of the vaginal route in pelvic operations; his ideas met with strenuous opposition.

We note in a paper by Dr. Keily, of Baltimore, the term "pelveo-peritonitis." It is not Latin, Greek, or English, and it is awkward as well as unnecessary.

It is stated that sixteen papers were read by title, but as only five of these are published, there is no positive proof that the remaining eleven had any other existence.

By more careful revision of the reports of the discussions, some awkward lapses, sometimes of style and sometimes of sense, might have been avoided.

A Manual of Hygiene. By Mary Taylor Bissell, M.D., Professor of Hygiene in the Woman's Medical College of the New York Infirmary for Women and Children. Small 8vo, pp. xii, 330, and Index. New York: The Baker & Taylor Co.

This work is intended primarily to be a text-book for medical students, but the author expresses in the preface the hope that it may be found useful in higher schools and colleges not connected with medical institutions. In the main it will doubtless be a great improvement over the manuals of hygiene which are favored by school-boards, but it is certainly not without demerits. In the chapter on water, for instance, we are told that the consensus of experts has fixed the limits of "bacterial permissibility" in water to be anywhere from fifty to five hundred per cubic centimeter. Apart from the inference that water containing less than fifty per cubic centimeter would not be permissible, the statement gives currency to the now exploded view that the number of bacteria in a sample may be taken as an index of purity. On page 100 we are advised that ammonia salts may be detected in water by adding Nessler's reagent to a small quantity of sample, a method of testing that is never used by competent analysts unless there is reason to believe that the quantity of ammonium salts is quite large. In fact the two pages devoted to the analysis of water show a failure to consult the recent literature on the subject. The same may be said of the chapter on milk, in which it is stated that oleomargarin is much lower in price than butter, a statement that is quite erroneous in the sense in which the author intends it to be understood. We note in this chapter that Flügge gives one hundred thousand bacteria per cubic centimeter as the maximum permissible limit in milk (probably as preposterous a statement as Flügge ever made), and we also note a reference to Mr. *Earnest* Hart. Mr. Hart undoubtedly merits this amendment to his name; still we question if he would be pleased by it. The book is well printed, and the illustrations as a rule good. It is difficult to see why, in the brief article on the bacteriologic examination of water, the only illustration should be that of the ruled-square for colony-counting.

Transactions of the Medical Society of the State of Pennsylvania at its Forty-fourth Annual Session, held at Philadelphia, 1894. Volume xxv. Published by the Society. Philadelphia: The Edwards & Docker Co., Printers, 1894.

A better idea of the contents and value of the *Transactions of the Medical Society of the State of Pennsylvania* for 1894 can be obtained by reference to the News of May 19 and 26, containing a report of the proceedings of the last annual session of the Society than could be given within the limits of a brief review. We have but to add that the work reflects credit upon the Society and is up to the high standard already established.

CORRESPONDENCE.

THE TREATMENT OF DIPHTHERIA WITH THE ANTITOXIN.

To the Editor of THE MEDICAL NEWS,

SIR: In the report of the discussion at the New York Academy of Medicine in your issue of November 17th, page 561, the question of Dr. J. Lewis Smith as to the effect of the antitoxin upon pseudo-diphtheria was put to me, and not to the chairman.

I replied that treatment with the antitoxin was not instituted by Prof. Baginsky unless the diagnosis was positively established to be diphtheria by the well-known bacteriologic methods. The antitoxin being an inert substance, however, really could do no harm even when injected into the body of a healthy person.

Dr. Berg then asked whether we recognized a streptococcus-diphtheria as distinct from a Loeffler diphtheria, and what results were achieved? To this I replied that we recognized only as diphtheria that form of disease in which Klebs-Loeffler bacilli were found.

In the discussion I cited a case of malignant laryngeal diphtheria which arose in the Messiah Home for Children, and which I sent to Willard Parker Hospital. The case was injected by Dr. Shrady, and got well.

Sincerely,

LOUIS FISCHER.

187 SECOND AVE., NEW YORK.

NEWS ITEMS.

The Antitoxin of Diphtheria.—The immunization of a horse in the process of preparation of the antitoxin of diphtheria was commenced on November 5th at Washington by Passed Assistant Surgeon Geddings, of the United States Marine-Hospital Service, by the subcutaneous injection of 0.5 c.c. of the toxins of the diphtheria-bacillus. The operation was followed by little local and constitutional reaction. The injections are to be repeated at intervals, and the whole process should be completed in the course of from eighty to ninety days.

Dr. William P. Spratling has been elected Superintendent of the Craig Colony for Epileptics, of New York. The choice was made by competitive examination. Before entering upon his duties Dr. Spratling will visit the famous colony for epileptics at Bielefeld, Germany, and also other colonies of a smaller scale recently established in England.

Smallpox in Washington, D. C.—During the week ending November 14th, five new cases of smallpox were reported in the District of Columbia. One occurred in an employé at the smallpox hospital, the remainder in private families.

Smallpox in Wisconsin.—From October 22d to November 5th, 117 cases of smallpox were reported in Milwaukee, with 43 deaths.

BOOKS AND PAMPHLETS RECEIVED.

Vade-Mecum du Practicien. Diagnostic et Traitement des Maladies Internes. Par le Dr. Fernand Roux. Paris: G. Steinheil, Éditeur, 1894.

Alumni Oration Delivered before the Alumni Association of the Medico-Chirurgical College of Philadelphia. By Hon. Charles Emory Smith. Reprinted from the Medical Bulletin, 1894.

Typhoid Fever, with Special Reference to Treatment by Antiseptics. By Adolph Koenig, M.D. Reprinted from the Pittsburg Medical Review, 1894.

Appendicitis Obliterans. By N. Senn, M.D., Ph.D., LL.D. Reprinted from the Journal of the American Medical Association, 1894.

Circumcision. By B. Merrill Ricketts, M.D. Reprinted from the New York Medical Journal, 1894.

Report of a Case of Carcinoma of Ileum; Intestinal Obstruction Relieved by Anatomosis with a Murphy Button. By B. Merrill Ricketts, M.D. Pamphlet.

The Surgical Use of Cocain. By B. Merrill Ricketts, M.D., Cincinnati. Leaflet.

Traumatic Periostitis. By B. Merrill Ricketts, M.D., Cincinnati. Pamphlet.

Obliteration of Congenital Pigmentations. By B. Merrill Ricketts, M.D. Reprinted from the Journal of the American Medical Association, 1894.

Increasing the Length of Bones. The Means of Increasing the Length of Bones and of Arresting their Growth. The Application of Some Experimental Facts to Surgery. By L. Ollier, Hotel Dieu, Lyons, France. Translated by B. Merrill Ricketts, M.D. Pamphlet.

Small Hospitals. Establishment and Maintenance. By A. Worcester A.M., M.D., and Suggestions for Hospital Architecture, with Plans for a Small Hospital. By William Atkinson, Architect. New York. John Wiley & Sons, 1894.

Fourteenth Annual Announcement Toledo Medical College, Toledo, Ohio. Session of 1894–95.

Where to Send Patients Abroad for Mineral and Other Water Cures for Climatic Treatment. By Thomas Linn, M.D. Physicians' Leisure Hour Series. Detroit: George S. Davis, 1894.

Medical Heterodoxy. By G. M. Peavler, M.D. Bristol, Tenn. Pamphlet, 1894.

Tennessee Medical College, Knoxville. Announcement of 1894–95.

U. S. Department of Agriculture. Bureau of Animal Industry. Bulletin No. 6. Additional Investigations Concerning Infectious Swine-Diseases. By Theobald Smith, Ph.B., and Veranus A. Moore, B.S., M.D. Washington: Government Printing Office, 1894.

Puerperal Infection Considered from a Bacteriological Point of View, with Special Reference to the Question of Auto-Infection. By J. Whittridge Williams, M.D. Reprinted from the American Journal of the Medical Sciences, 1893.

Arthropathy in General Paresis. By James Hendrie Lloyd, A.M., M.D. Reprinted from the Philadelphia Hospital Reports for 1892.

Traumatic Affections of the Cervical Region of the Spinal Cord Simulating Syringomyelia. By James Hendrie Lloyd, A.M., M.D. Reprinted from the Journal of Nervous and Mental Diseases, 1894.

Hysterical Tremor and Hysterical Anorexia (Anorexia Nervosa) of a Severe Type. By James Hendrie Lloyd, A.M., M.D. Reprinted from the American Journal of the Medical Sciences, 1893.

Malarial Cachexia, Chronic Malarial Poisoning, Chronic Intermittent. By N. L. Guice, M.D. Reprinted from the Virginia Medical Monthly, 1894.

Response to the Toast, "The Country Doctor," at the Colorado State Medical Banquet. By Jesse Hawes, M.D., Greeley, Colorado.

Beitraege zur Histologie und Histogenese des Uterus-Sarcoms. I. Myoma Sarcomatodes Uteri. II. Sarcoma Mucosæ Uteri et Myomata Uteri. III. Melano-Sarcoma Corporis et Cervicis Uteri. Von J. Whittridge Williams, M.D. Separat-Abdruck aus der Zeitschrift für Heilkunde, 1894.

Conservatism in Abdominal and Pelvic Surgery. By James B. Baird, M.D. Reprinted from the Atlanta Clinic, 1894.

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ORIGINAL ARTICLES.

FURTHER OBSERVATIONS UPON THE ETIOLOGY, DIAGNOSIS, AND TREATMENT OF ACUTE AND CHRONIC APPENDICITIS, WITH THE REPORT OF SIXTY-ONE CHRONIC CASES OPERATED UPON, WITH ONE DEATH.

BY JOHN B. DEAVER, M.D.,
PROFESSOR OF SURGICAL ANATOMY IN THE UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA.

SINCE the publication of my last papers on appendicitis, which appeared in THE MEDICAL NEWS of May 19, May 26, and June 16, my further experience has more than convinced me that the views then expressed have been borne out by the results attained by the measures then advocated. Further, I am prepared to express myself more strongly than ever in favor of early operation in acute primary attacks of appendicitis, and of operation in all cases of chronic appendicitis, including under this heading the sub-acute, the relapsing, and the recurrent varieties.

As regards etiology, I would emphasize the views I have already expressed regarding the importance of foreign bodies as a factor in the causation of a large proportion of acute and of a smaller number of chronic cases. In the great majority of the latter the condition found is that of a chronic catarrhal inflammation, while the bulk of acute cases is due largely to foreign bodies, *i. e.*, fecal concretions and extraneous substances. I have only seen two cases in which real foreign bodies were not found. In one, an acute case, the appendix contained a large number of strawberry-seeds; in the other, a chronic case, the appendix had contained a date-seed which had escaped at the point of ulceration. It was found above the tip of the appendix, which pointed north and lay behind the colon.

I believe that all cases of appendicitis begin as a catarrhal inflammation, in which the bacterium coli commune plays an important causative rôle. After this inflamed condition of the appendix has been established, the future outcome of the case, pathologically, very frequently depends upon the presence of a fecal concretion or foreign bodies and bacteria of suppuration other than the bacterium coli commune. No definite rule can be laid down, because there are cases that illustrate both conditions. It has been my experience that in acute perforative, and frequently in non-perforative, cases fecal concretions were found to exist either within the organ or in its immediate neighborhood.

I have already made the statement that the diagnosis of appendicitis is not difficult in the vast majority of cases. I am now more than ever convinced of the truth of this statement and of the importance it bears to successful treatment. The history of the case and the localized signs that center around that most valuable landmark known as McBurney's point are always sufficient to establish the diagnosis either directly or by exclusion. The acute cases that go on to suppuration, and in which there is the greatest tendency for the pus to become circumscribed, are those in which the appendix points toward the northern end of the appendiceal compass and lies between the layers of the mesocolon.

The palpation of the appendix in chronic cases is a valuable and reliable means of diagnosis. Of course, in those cases in which the organ lies behind the cecum the method is less valuable, although it is even then of service, because when the cecum is distended the condition is due to flatus and not to feces. This has been my experience in the sixty-one chronic cases upon which I have operated, to say nothing of a much greater number of acute cases. I have been able to diagnosticate and demonstrate by operation a thickened appendix, giving its direction and location and its depth from the anterior wall of the abdomen. Women are better subjects, but the method is applicable to men, especially if they have been the victims of repeated attacks of appendicitis. In chronic cases I have noted that upon palpation over the base of the appendix the pain is referred in a direction corresponding to the long axis of the organ, *i. e.*, when the pain is referred to the liver the appendix points north, and so on, corresponding to the different positions that the appendix holds.

The difficulty attending the differential diagnosis between chronic appendicitis and incipient psoas-abscess, that is before the pus has passed any distance down the psoas-sheath, I have had forcibly brought to my mind recently in two cases. The chief points in favor of a forming psoas-abscess are the appearance of the patient, usually that suggestive of tuberculosis, the information to be obtained by an examination of the spine, a complete temperature-record, and a tendency to flexion of the thigh of the affected side. While the last-mentioned sign may

be and is present in some cases of chronic appendicitis, it is a far more frequent accompaniment of psoas-abscess. Palpation will, in the great bulk of cases of chronic appendicitis, determine the presence of a diseased appendix, while deep pressure over the right iliac fossa will in case of psoas-abscess, although revealing tenderness, fail to disclose the presence of either a diseased appendix or the characteristic rigidity of the flat muscles of the abdominal walls.

As regards treatment, my rule is this: Given the case of a patient who suddenly develops severe abdominal pain, at first referred either to the epigastrium or about the umbilicus, and later to the right iliac fossa, accompanied by nausea and vomiting, and following some dietary excess or indiscretion, and preceded as a rule by a history of intestinal dyspepsia, and when examination reveals rigidity and tenderness over McBurney's point, I at once administer a purgative, preferably castor-oil or salts. If this is not retained I give calomel. If after the purgative has operated satisfactorily the symptoms continue, along with an increase of intensity of the localized tenderness, I at once operate. The three cases that follow will illustrate my statement and prove my theory to be sound, and the procedure a life-saving measure.

Case I.—On the evening of June 26, 1894, I was called to see Dr. J. H. B., aged forty-five, one of our leading practitioners. I found him suffering with acute abdominal pain, most intense in the right iliac fossa, the character of which I recognized as that of appendicular colic. He gave a history of chronic intestinal dyspepsia extending back for a period of years, also a vague history of having suffered in the past from a slight attack of appendicitis. Three days prior to my visit he had suffered from an acute attack of indigestion, the result of indiscretion in diet, which had been somewhat relieved by active purgation. The day of my visit he had had several bowel-movements, yet the pain in the right iliac fossa, which was paroxysmal, was increasing in intensity, notwithstanding the fact that he had taken, upon his own responsibility, one-fourth of a grain of morphin. Physical examination of the abdomen convinced me that the man was suffering from an acute, progressive attack of appendicitis. I advised immediate operation, and at 8 o'clock the following morning I removed the acutely inflamed appendix, the mesenteric attachment of which was gangrenous in its distal half. Recovery was uninterrupted.

Case II.—Dr. J. C. R., aged twenty-two, resident physician in the German Hospital, while on duty was taken sick on the evening of August 30, 1894, with severe general abdominal pain, soon becoming localized in the right iliac fossa. Under active purgation he was somewhat relieved, but the appendicular pain persisted. On the evening of the 31st I was asked to see the patient by Dr. Frese, the chief resident physician of the hospital, who informed me that in his judgment the doctor was not so well, and he feared the case was progressing unfavorably. I confirmed Dr. Frese's diagnosis of acute appendicitis and advised immediate operation.

The operation was done at 8 P M. The appendix occupied the southwest position and was bound down by adhesions. It was gangrenous and about to perforate; it contained a small collection of pus at its tip. Recovery was uninterrupted.

Case III.—During the early part of the past summer I was called to see Mrs. B., the wife of a prominent Philadelphia physician, who was suffering from what was believed to be appendicitis. She was at the same time suffering from uterine hemorrhage, which from its severity and from the fact that it was associated with acute paroxysmal abdominal pain, raised the question of extra-uterine pregnancy. Vaginal examination demonstrated a point of excessive tenderness high up and to the right, but otherwise was negative. I confirmed the diagnosis of appendicitis, and we decided upon active purgation. This not being followed by abatement of her symptoms, operation was advised. The appendix lay southwest, was adherent, very much enlarged, and contained a considerable amount of pus. The surrounding tissues were covered with inflammatory lymph. Recovery was uninterrupted.

In this connection it is interesting to note that this was the third member of the family upon whom I had operated for appendicitis.

Case IV.—I recently saw in consultation a young lady with appendicitis in whom the symptoms had not yielded to purgation; the appendix was so palpable that it was believed to lie in contact with the anterior parietal peritoneum. Operation was advised. The appendix was found acutely inflamed and in contact with the anterior parietal peritoneum. Recovery was uninterrupted.

I report the following two cases of acute appendicitis to illustrate the frightful rapidity with which such cases may go from bad to worse if not operated upon very early. The only possible hope of recovery in such cases lies in immediate operation, as they that do not show decided improvement with marked amelioration of all symptoms, especially of tenderness, after the administration of purgatives.

Case I.—Mr. R., twenty-eight years of age, was attacked fifty hours before operation. The symptoms grew steadily worse in spite of all medication. When the belly-cavity was opened pus welled up in the wound in quantities. The appendix, which pointed northeast, was gangrenous and had separated from its attachment to the cecum, which also was gangrenous, leaving a large hole in the latter, through which fecal matter was escaping. The opening in the cecum was closed with difficulty. The peritoneal cavity was carefully and thoroughly washed out and drained with glass tube and gauze. The patient died on the third day following the operation.

At the post-mortem examination the external wound was found in good condition, and the glass and gauze drainage still in position. The omentum was congested and infiltrated, presenting the appearance of a cock's comb, and was adherent to the lower end of the cecum around the drainage-tube. All the tissues in the right iliac fossa were in a semi-gangrenous state. The cecum around the opening found at the operation was gangrenous; the stitches, however, were still in position. To the inner side of the row of sutures the bowel was perforated, allowing the escape of feces and pus. The general peritoneal cavity was infected, but contained very little pus; there was no pus in the pelvis. The intestines were covered with lymph. The cause of death was septic peritonitis.

Case II.—Mr. K., aged twenty-three, was attacked May 23 with severe abdominal pain, referred to the epigastrium, and soon becoming localized in the right iliac fossa. Tenderness was marked and persistent, and on the 25th was intense, accompanied by exaggeration of all the symptoms, local distention, vomiting, and constipation. Operation was undertaken on May 28th. When the peritoneum was opened a considerable quantity of pus escaped. The cecum was distended with gas, and the small intestines were injected, but not paralyzed or distended. The appendix, which occupied the northeast position, was brought into view and tied off. The meso-appendix was short, and was attached to the basal half of the organ; perforation had taken place at about the middle third; the appendix beyond was gangrenous. There were no adhesions, and apparently no attempt upon the part of nature to close off the general peritoneal cavity. The pus cavity was thoroughly washed out, but upon placing glass drainage in the pelvis fully a pint more of pus escaped. The patient made a rapid and safe recovery.

The amount of pus, especially that in the pelvis, and the absence of any apparent attempt upon the part of nature to protect the general peritoneal cavity, and the recovery of the patient, point conclusively to the fact that with proper technique the general peritoneal cavity under these circumstances can be protected against infection, and the case brought to a successful issue.

In connection with this paper I report 61 cases of operation for chronic appendicitis, with one death. The fatal case was the following:

B. K., a female, aged twenty-two, born in Ireland, was admitted to St. Agnes' Hospital, September 19, 1894, with a history of four previous attacks of appendicitis. At the time of admission to the hospital she complained of pain in the right iliac fossa. The tenderness in this region was so great upon slight pressure as to preclude a thorough examination. The greatest tenderness was at the McBurney point. Immediately beneath the right semi-lunar line, and within the abdomen, a large mass was felt. The patient suffered from retention of urine, requiring catheterization.

Upon opening the peritoneal cavity an immense mass came into view, composed of the small and large intestine and omentum, bound firmly together by dense adhesions. The omentum was ligated in sections and cut away. The adhesions were carefully broken up, exposing the cecum imbedded with the appendix in an inflammatory mass. After a tedious dissection the cecum and appendix were freed, and the latter ligated and removed.

I beg to call attention particularly to this case on account, first, of the number of attacks; second, the condition found at the time of operation; and, third, the result. Had the patient been operated upon early in or after the primary attack, the result would doubtless have been different. If the appendix had been removed at this time the inflammatory mass found in the right iliac fossa would not have been present, and such an extensive dissection not rendered necessary.

The rôle the appendix plays in many cases of intestinal indigestion I am sure is important. This has been beautifully shown in many of the cases of chronic appendicitis I have operated upon for digestive symptoms, which were so persistent before the appendix was removed, and entirely disappeared after recovery from the operation. I am so thoroughly convinced of the importance of this fact that I believe a permanent cure can only be obtained in a certain proportion of cases of chronic intestinal catarrh by removal of the appendix, should it reveal tenderness, even when there has been no clear history of an attack of inflammation of this organ.

In my record of operations for chronic appendicitis are included three cases in which was present chronic diarrhea with mucous stools, and in one also blood. In two of these cases the diarrhea, along with other evidences of intestinal disturbance, disappeared six months after operation. In the third case, operated upon five months ago, while there is still diarrhea, it is improving. This case is of special significunce from the fact that, although the patient had received most exhaustive and prolonged treatment, both internal and local, at the hands of expert medical men, yet the diarrhea proved rebellious. I believe this case will, as have the others, entirely recover.

In closing, I wish to emphasize the important deductions that have forced themselves upon me. The first and most important of all is the necessity of early operation for those cases of acute appendicitis, whether in the initial attack or in an acute attack supervening upon a chronic appendicitis not immediately yielding to judicious purgation. The ravages of this affection are so rapid and so fatal that I can hardly express myself too strongly upon this point. I hear so often from medical men and the more conservative surgeons that appendicitis is

Name.	Age.	Sex.	Date.	Number of attacks.	Condition of bowels.	Position of appendix.	Pus.	Adhesions.	Manner of treating stump.	Result.	Remarks.
D. R.	34	M.	1890 July 20 1891	2	Constipated	S. W.	Yes	Yes	Tied off.	Rec.	Abscess-cavity walled off.
A. B.	9	F.	Sept. 12	1	"	N.	"	"	" "	"	Appendix partially gangrenous.
F. F.	28	M.	1892 1893	1	Normal	N.	"	"	" "	"	Abscess-cavity walled off.
L. F.	30	M.	April 11	1	.....	N. E.	"	"	" "	"	" " " " "
W. I.	35	M.	May 3	1	Constipated	N.	No	Slight	" "	"	Mucous and submucous coats greatly thickened.
R. S. B.	25	M	May	2	.....	S. E.	"	"	" "	"	Long meso-appendix.
Mrs. K.	25	F.	May	1 7 yr's ago	....	S.	Yes	"	" "	"	Pain in right iliac fossa since acute attack; in bed for nineteen weeks prior to operation; short appendix.
C. N.	39	M.	Aug. 14	4	Diarrhea	S.	No	Firm	" "	"	Appendix tightly bound down by adhesions.
E. B. P.	50	M.	Aug. 19	5	"	N. E.	Yes	"	" "	"	Ulceration, with purulent collection in appendix.
Mrs. B.	30	F.	Dec. 29 1894	1	Constipated	S. W.	No	Numerous	" "	"	Appendix gangrenous.
T. W.	28	F.	Jan.	2	Diarrhea	S. W.	"	Slight	" "	"	Two coproliths.
A. M.	17	F.	Jan. 2	1	Normal	N.	"	No	" "	"	Appendix post-cecal.
I. R.	21	F.	Jan. 20	1	Constipated	S.	"	Slight	" "	"	Long meso-appendix.
L. V.	49	F.	Jan. 30	3	Diarrhea	S.	"	Firm	Circular amputation, stump invaginated.	"	Appendix short, bound down.
M. C.	23	F.	Feb. 8	1	....	S. E.	Yes	Slight	" "	"	Appendix thickened.
C. F. Z.	23	M.	Feb. 8	2	Constipated	S. E.	"	Firm	Tied off.	"	Adhesions to omentum.
J. McC.	19	M.	March	3	.....	N.	"	"	Circular amputation, stump invaginated.	"	Appendix bent, twisted, gangrenous.
S. F.	30	M.	March	4	.....	N. W.	No	"	" "	"	Adhesions entirely surrounding appendix.
M. S.	60	F.	March	1	.....	S. W.	"	Numerous	" "	"	Long meso-appendix.
M. L.	65	M.	March	1	Constipated	S. E.	Yes	Firm	" "	"	Short " "
J. T. B.	34	F.	April	1	Diarrhea	S. W.	No	"	" "	"	Appendix tied down.
R. D.	18	M.	April 3	3	"	N. W.	Yes	"	Tied off.	"	Sinus in right lumbar region leading to orifice in appendix.
H. E. W.	26	M.	April 4	4	"	N. E.	"	"	Circular amputation, stump invaginated.	"	Tip adherent to cecum, ulceration at point of contact; stump with margin of cecal ulcer invaginated.
L. W. G.	31	M.	April 7	1	Constipated	N.	Yes	"	" "	"	Appendix enveloped in wall of omentum.
E. B.	27	F.	April 17	3	Diarrhea	S. W.	No	No	" "	"	Appendix very long.
L. P. B.	38	M.	April 18	1	.....	N. W.	Yes	Firm	" "	"	Appendix twisted and gangrenous.
H. G.	58	M.	April 21	3	.....	S.	"	No	" "	"	Abscess-cavity walled off.
H. O.	35	F.	April 29	2	Constipated	S. E.	No	Numerous	" "	"	Appendix enlarged.
L. C.	53	F.	April 30	1	Diarrhea	N.	"	Slight	" "	"	Walls infiltrated.
E. T.	14	M.	May 3	1	Constipated	S.	"	Firm	" "	"	Appendix adherent to mesentery; during acute attack passed cast of appendix.
G. G.	50	M.	May 16	10	"	N. E.	"	Yes	" "	"	
S. C.	22	F.	June 4	2	Diarrhea	E.	"	"	" "	"	Pain referred to left side, subjective symptoms in right iliac fossa: tip of appendix attached to peritoneum to left of median line.
H. P.	37	F.	May 24	5	"	N. E.	"	"	" "	"	
Mrs. B.	34	F.	May	1	Constipated	S.	Yes	No	Tied off.	"	Long meso-appendix; appendix contained pus.
M. E.	25	F.	May	1	"	S. W.	No	"	Circular amputation, stump invaginated.	"	Appendix thickened at distal end.
R. C. Y.	26	M.	June 7	3	"	S. E.	"	Yes	" "	"	Tuberculous.
R. S.	19	M.	June 12	1	Diarrhea	S. E.	"	No	" "	"	Appendix had sloughed.
McI.	30	M.	June 10	1	Constipated	N. E.	Yes	Yes	Tied off.	"	
J. M.	26	M.	June 16	4	"	N.	No	No	Circular amputation, stump invaginated.	"	
J. McF.	27	M.	June 25	9	"	S.	"	Many	" "	"	First attack fourteen years ago; suffered since with entero-colitis; disappeared since operation.
J. H. B.	45	M.	June 27	1	"	N. W.	"	No	" "	"	Meso-appendix gangrenous.
R. M.	30	M.	June 28	3	"	S. E.	Yes	Yes	Tied off.	"	Omentum gangrenous, tied off and removed.

Name.	Age.	Sex.	Date.	Number of attacks.	Condition of bowels.	Position of appendix.	Pus.	Adhesions.	Manner of treating stump.	Result.	Remarks.
			1894								
E. C.	21	M.	June 26	1	Normal	N.	No	Yes	Tied off.	Rec.	
J. D.	17	F.	July 3	1	Constipated	...	Yes	"	.....	"	
E. C.	26	F.	July 11	2	"	S.	"	No	Tied off.	"	
C. S. B.	22	M.	Aug. 5	7	Normal	N.	No	Yes	Circular amputation, stump invaginated.	"	Appendix much twisted; post-cecal.
M. G.	12	F.	Aug. 9	2	Constipated	N.	Yes	"	" "	"	
H. E.	34	M.	Aug. 10	1	"	S. W.	No	"	" "	"	
H. S.	27	M.	Aug. 26	1	Normal	N.	Yes	"	Tied off.	"	Appendix had sloughed from cecum; stump invaginated.
W. S.	18	M.	Aug. 27	2	Constipated	S. W.	No	No	Circular amputation, stump invaginated.	"	
Mrs. W.	24	F.	Aug. 28	2	"	N.	Yes	Yes	Tied off.	"	Invaginated.
Mrs. F.	32	F.	Sept. 4	2	"	S. E.	No	"	Circular amputation, stump invaginated.	"	Appendix long, clubbed at end.
C. W.	22	F.	Sept. 12	6	"	S.	"	No	" "	"	Thickened appendix.
B. McK.	22	F.	Sept. 26	4	"	S.	"	Yes	" "	Died	Adhesions very dense; appendix surrounded by inflammatory lymph; patient died of peritonitis.
J. N.	24	F.	Oct. 3	4	"	S.	"	"	" "	Rec.	Fecal concretion at tip.
J. A.	30	M.	Oct. 6	16	"	S.	"	"	" "	"	Appendix short.
F. N.	22	M.	Oct. 11	numerous	"	S.	"	No	" "	"	Repeated attacks for two years; appendix very long.
N. M.	28	M.	Oct. 17	7	"	S.	"	Yes	" "	"	Appendix completely twisted on itself; free bleeding during operation; glass and gauze drainage.
J. R.	43	M.	Oct. 18	3	"	S. E.	Yes	No	" "	"	
L. F.	23	M.	Oct. 23	3	"	S. W.	No	"	" "	"	
.....	30	M.	Oct. 24	2	"	S. E.	Yes	Yes	Tied off.	"	

amenable to medicinal measures, yet when they call in the consulting surgeon for those of their cases which do not improve, how often are they found beyond surgical aid? How often are we called in at the last moment to see supposed cases of obstruction of the bowels or idiopathic (?) peritonitis, only to find the patient moribund, with cold, blue extremities, in fact profoundly septic, the victim of a perforative appendicitis! I could cite instance after instance in which patients have died of inflammation of the bowels, peritonitis, obstruction of the bowels, and in one instance of "heart-failure," only to discover at the autopsy a gangrenous and perforated appendix, with a belly full of stinking pus. In looking over the weekly mortality-reports of the Philadelphia Board of Health I have often been struck with the fact that appendicitis does not figure as a cause of death. If autopsies were made in the cases in which death is recorded as due to "peritonitis," "inflammation and obstruction of the bowels," etc., I am certain that appendicitis would be found the primary cause of death in a large majority of cases so reported. The honest physician or surgeon who is open to conviction cannot but be convinced of the truth of my statements. One attack of appendicitis is almost sure to be followed by others. Each and every subsequent attack lessens the patient's chances for ultimate recovery—and why? Inflammation of the peritoneum leaves adhesions and inflammatory lymph; leaves an appendix the subject of chronic catarrhal inflammation which forms a fruitful soil for the development of bacterial life. Such an appendix is, in my opinion, the starting-point for a large percentage of the chronic intestinal troubles so commonly seen.

In view of these deductions, and the fact that the mortality of the operation for chronic appendicitis is practically *nil*, I must say that the safest and most logical procedure is operation. The golden opportunity is in the primary attack as soon as the diagnosis is established, thus eliminating the possibility of perforation, gangrene, pus, and general peritonitis. Should this opportunity be lost, and the patient recover from the attack, I strongly advise the removal of the appendix as soon as possible.

By asepsis and careful technique the operation can be done with but little risk to life, as has been proved by such men McBurney, Richardson, Bull, Fowler, and others. In further support of this I herewith tabulate sixty-one cases of operation for chronic appendicitis, with one death.

"AURAL MASSAGE" BY CONDENSATION AND RAREFACTION OF THE AIR IN THE EXTERNAL MEATUS AND MIDOLE EAR; ITS VALUE IN THE TREATMENT OF VARIOUS DISEASES OF THE EAR.

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"Aural massage," by alternately moving backward and forward the auricle with the opened and closed meatus, by the hands, with associate movement of the sterno-cleido-mastoid and occipital muscles, has been recommended and practised for some time for the purpose of giving freedom to the membrana tympani when adherent and thickened, and with some benefit, also, in certain diseased conditions of the other parts of the ear. Another method is to open and shut the orifice of the canal by pressure on the tragus at its lower part, closing the meatus with the thumb or forefinger; the force may be increased by greasing the canal with vaselin alone or with medicated ointments or oils. There is also a more perfect method of massage, by condensation and rarefaction, by means of the instrument of Siegle,[1] which has for years been employed in the examination of the membrana tympani. It resembles the ordinary hard-rubber speculum, but is more elongated, and its outer opening is fitted with an oblique plate of glass. A small nipple projecting from its side marks an opening to which is attached a small rubber tube ending in a mouth-piece. The instrument is used by inserting the small specular end into the meatus as far as possible (best covered with a section of rubber tubing and anointed). The mouth is applied to the end of the tube, or a small syringe, to exhaust the air, may be employed, or else an elastic valve bulb can be used; through the glass the movements of the membrana can be watched. All these plans were very unsatisfactory and could not be graded until Dr. Charles Delstanché, of Brussels, gave us two improved instruments, only a brief description of which I can give at this time, as they require cuts to fully illustrate them.

Delstanché's instrument for massage, or, as he terms it, his "masseur," consists of a metallic tube enclosing a smaller tube of metal which acts like the valve of a syringe. The recoil of the valve which produces the aspiration and condensation is accomplished by a spiral spring between the valve and the bottom of the metallic tube. The inner tube is graduated in fifths, so that one may determine by a key the amount of power to be employed. Care is necessary in the use of the instrument for fear of rupturing the drum-membrane, causing a great deal of pain, a flow of blood and an interference with the operation. In order to better condense the air in the tube the nipple-like process is covered with rubber. It must then be withdrawn from time to time, but the to-and-fro motion may be kept up for some time to advantage, always examining its effects upon the membra tympani. The other instrument is termed by Delstanché the "rarefacteur." It is provided with a double valve, and has an advantage over the other instrument in that, without removing the stop-cock, one may alternately condense and rarefy the air in the external meatus, or rarefy it alone. It is much more powerful, and with it we can rarefy the air in catarrhs of the middle ear and Eustachian tube, in which there is a sunken membrane, or break up adhesions between the membrana tympani and inner walls of the cavity of the tympanum, or after paracentesis of the membrane, when we have fluid products to be removed.

Several other instruments have been brought forth of late for the same purpose, differing in name, but all of them having the same object in view; they cannot be employed alone, but as an aid to other means, for although they are of value when properly applied by the scientific aural surgeon, they are of limited application, and like all efficient agents can do harm as well as good.

One of the most recent of these instruments has been termed the "vibrometer," which combines massage by sounds, both mechanic and electric, with exhaustion or rarefaction, with a series of musical strings. The first instrument employed was like a violin; the second like a guitar; the last is in the form of a banjo. This latter instrument is termed a vibrometer. A medical friend made a series of experiments with the first one hundred cases[1] of tinnitus aurium and deafness, but only 2 per cent. were successful in relieving the patients, and my own efforts have been as resultless. Ten cases out of one hundred will be reported. These will be sufficient for our purpose; they have not been selected, but are like the ordinary cases that present themselves to the aurist every day for treatment.

The following are the rules for the use of the instrument employed, after making a careful diagnosis, and correcting, as far as we are able, defects that would interfere with the successful use of the instrument:

The length of the sittings is from five to twenty minutes, and the number two a week. For tinnitus, like the ringing of bells, the chirping of insects, the singing of birds, the sounds of escaping steam, try the highest notes of the instrument, say twenty thousand vibrations a second. Draw the fine musical string of the vibrometer very tight and shorten it with a clamp to obtain high notes; to obtain low notes

[1] Siegle's pneumatic otoscope or speculum.

[1] Private statement; the cases are not yet reported.

elongate the strings. When the tinnitus gives a deep sound like the sewing-machine, the humming of a saw-mill, and for all low-pitched sounds, use the low-toned strings, say of fifty vibrations a second, and the pounding arrangement with the so-termed exhausting wooden plate. When the tinnitus is high, increase the vibrations up even to thousands. When the right pitch has been obtained the patient should only hear one sound, and the noises which he hears continually should be gone. In the case of a physician who suffered with constant tinnitus he was able by the use of the vibrometer to get rid of it, but he required the constant use of the instrument, as the tinnitus would return. He, therefore, desired to have the instrument in his office. Numerous physicians tested the instrument, and most of them would report the disagreeable effects on their ear. One wrote as follows: "So far, since your treatment by electricity, I have noticed no effect whatever. If anything, the hearing has been a little more dense, but I attribute that to the dampness."

CASE I.—An old gentleman, eighty-two years of age, was subject to gout, but had generally good health. The tuning-fork C, 500 v., was heard five inches from the left ear; in the right ear, three inches, as a musical note. The Weber test showed obstruction in the middle ear; the Eustachian tube was opened by the Valsalva method. Inflation by Politzer's air douche improved the hearing. The watch was heard by the left ear 5/36 in., right 3/36 in. The ordinary voice was heard with the left ear. Tinnitus aurium existed in the right ear, from catarrhal disease of the middle ear, and was increased by the use of quinin, which had to be taken in large doses at varying intervals owing to malarial disease. He had for years suffered from intermittent fever. The form of tinnitus aurium was of a puffing character, and was increased when he arose from a sitting or lying posture. He has had almost all the time an intermittent pulse (at the present time, 10 A.M., it intermits once in every thirty beats) improved under $\frac{1}{40}$ grain strychnin. I opened the Eustachian tube by the Politzer method on Thursday, May 18th. Applications of the vibrometer gave the puffing and drawing sensations for some five minutes, a feeling of fulness in the right ear, and sounds in the ear not so loud. On May 22d I made a second application after he had just arisen from a short sleep; it left a musical note in the right ear, drowning the hissing noise, but it did not last long. On May 19th the man stated that since the use of the vibrometer he had never suffered so much from the noises, which prevented him from sleeping at night. He was not willing to use the instrument any more. As the character of the noises indicated that they were from the heart or bloodvessels, he was ordered a preparation of caffein, pepsin sacch., bismuth citrate, and strychnin, to be taken when the noises were very troublesome and when he had dyspeptic symptoms, from which he was suffering.

CASE II.—Mrs. L. P. S. was eighty years of age. She had been a sufferer from scarlet fever of a severe type, and had a second attack; she was still able to hear imperfectly. Subsequently she suffered dreadfully from grief and mental conditions, and contracted catarrhal inflammation of the middle ear. She had almost entirely lost her hearing. On testing, on May 18th, she could not hear the 0/36 inch watch in either ear, nor the tuning-fork in air in the left; the tuning-fork was not heard on any part of the right side, or by the Weber test when the ear was shut. I opened the Eustachian tube of the right with the catheter, and inflated the tympanum with chloroform. This improved the hearing of the voice. Her tinnitus aurium was like the sound of a sewing-machine. I arranged the vibrometer for a similar sound, and employed it several times. At the conclusion she was able to hear the tuning-fork "A" when it touched the auricle. The voice was heard better across the office. She disliked the effect of the vibrometer, and was not willing to continue treatment.

CASE III.—Mrs. G. H., aged thirty-five, applied for treatment, April 9, 1894. She had had deafness and distressing noises in the head for one year. She suffered from coryza and melancholia, with irritation of the bladder and inherited pulmonary tuberculosis. Pharyngitis and chronic inflammation of the turbinated bones, with discharge of blood and pus, were present, and she had to breathe through the mouth. Bone-conduction was good, air-conduction diminished; the left Eustachian tube was normal, the right narrowed. The meatus was normal, the membrana tympani adherent on the right, with connective-tissue deposit. The nostrils were narrowed and deformed, and drawn upward from an ulcer. The former treatment had been by Seiler's tablets, to make a wash, and the use of Politzer's air-douche. The subjective sounds at her first visit were very distressing, chiefly of a boiling and whistling character. The treatment was by cleansing the nostrils and then applying a solution of silver nitrate, on cotton, with a bent wire, a saturated solution of potassium iodid, five drops, three times a day, increasing until the stomach was disturbed; I then substituted strychnin, $\frac{1}{35}$ grain daily. I used cleansing and pressure, and opened the tubes by catheter. Delstanché's masseur was used. The nose was improving and more natural, and there was improvement in general condition. She described her hearing as better, yet certain tones were not heard. Hearing distance was, right ear 36/36 left, 36/12. The description of the noises, as written by herself, was, on May 18, as of rushing in the right ear and roaring a little. I employed the vibrometer (which she described as being very disagreeable), either faint or drawing a musical note. On May 31 the noises were less, but were like the rumbling of passing coal-cars. I sought to give her a sound as like it as possible for five minutes. On June 4 noises were still less, and she felt very much better. She took the vibrometer treatment for five minutes, "pounding," and then the musical string. On June 5 she stated that she was decidedly better. I ordered the syrup of hydriodic acid in place of the potassium iodid, which disturbed her digestion, and also gave ten minutes' treatment with the vibrometer. On June 7 the patient reported some trouble with her heart, and repressed respiration. She had neglected the strych-

nin, which was again ordered. She would not use the vibrometer, as it gave her "a stuffy feeling," and was unpleasant to the ears. On June 13 she had improved hearing, and the noise was much less. The Eustachian tube was free and the nose all right. I used massage to the ear. On June 20 the nose was not so well, and there was a slight dropping, which was relieved by application of silver nitrate. I opened the Eustachian tube and injected vaselin, and applied massage to the membrane tympani and the ossicles. There was some pain and irritation of the kidneys, and I ordered the free use of Bedford water. My patient left for the summer decidedly improved in every way.

Case IV.—James C., aged fifty-three years, was an insurance-agent. He had been deaf for twenty-five years; with the left ear he could not hear his watch on contact; he heard his own watch on the right, on contact, but not mine. There was no inheritance of nasal trouble. He had been in the army, and had contracted rheumatism with naso-pharyngeal catarrh, but this had been cured. He had a low buzzing sound, but no otorrhea or pain. He had no headache, no vertigo, and no discharge from the ear; hearing was best when everything was quiet, of the left, in air quiet close, best on contact on right; the watch of thirty-six not in contact with left ear. Under treatment for three months, I used the Politzer spray of carbolic acid and Dobell's solution. I introduced the Eustachian catheter in both ears, and inflated with chloroform, with no benefit. I then employed the vibrometer, and directed strychnin granules, one-fortieth of a grain, and syrup of hydriodic acid. Just before leaving he informed me that previous to becoming an insurance-agent he had all his life worked in a foundry; he evidently had foundryman's deafness. On May 24 he stated his hearing was somewhat improved by the treatment of May 21, but he had lost it since. The sounds were of a low buzzing character, and I arranged the vibrometer for the use of the lowest tones, and he received the application for twenty minutes. At the conclusion I found he could hear his own watch on the right, half an inch, and on the left on contact. Hearing for voice was better; tuning-fork in air, left ear, one inch; right, two inches. On May 28, the patient desired the "pounding and exhausting" arrangement; this he had for several weeks, and I then opened the Eustachian tube with catheter and chloroform vapor, and also injected a 20 per cent. solution of pilocarpin. His hearing in the right improved to two inches; in the left he could not hear the watch on contact. On June 1 he stated that any improvement only lasted twenty-four hours. I found he was both a chewer and smoker of tobacco, and had the peculiar yellow mucous membrane and laryngeal catarrh from tobacco. He took the vibrometer for fully four weeks after he could still hear its peculiar sound in his ear. He ceased his attendance.

Case V.—Miss K. F., was a school-principal, with otitis media catarrhalis chronica, from childhood, due to cold, coryza, and rheumatism. There was no discharge, no pain, but she had subjective sounds, singing, etc. There was no inheritance of deafness; she was subject to sick-headaches, and the menses were painful and exhausting. The Eustachian tubes were opened in both ears by the Valsalva method and the catheter. There was good bone-conduction, but air-conduction was diminished. The meatus was normal but dry, the membrana tympani opaque, sunken and adherent. The air-douche improved the hearing for distance. Bone-conduction was good. The nostril was occluded, the septum having been operated upon, but still defective. She had been under the treatment of a careful aurist for six months, but was not improved. By careful treatment since November 25, 1893, by inflation with catheter and chloroform, and Delstanché's massage, she has improved from almost deafness to left ear 10/35, right, 4/36 but it is still difficult to hear the voice, especially in certain words. I employed the vibrometer fifteen minutes, May 19, and fixed it as nearly as possible to the sounds she heard. Some time afterward the ordinary sound was replaced by the vibrometer-sound in her best ear, while in the right ear she only perceived a beat in the ear, while in the other it was a pricking and sounding. On May 30 she returned very much distressed with the noises in the left ear, and thought the vibrometer increased them the last application, but upon examination I found the Eustachian tube blocked up with mucus and the throat inflamed. I cleansed this all out and opened the tube with the Politzer air-douche. I then applied the vibrometer on the very deaf ear by using the "pounding and exhausting" impression. Hearing returned to 10/36 left, 10/36 right. On June 13 the noises were on the increase, and I washed out the nose and throat, opened the Eustachian tube and directed $\frac{1}{200}$ of a grain of nitro-glycerin daily, which proved of advantage to all the symptoms. She left for her summer vacation.

Case VI.—M. O., aged fifty-five, has suffered from catarrhal otitis media, with obstructed and narrowed meatus, and narrowed Eustachian tube, and deafness of several years; improvement followed the introduction of the catheter, with chloroform-vapor and Delstanché's masseur. I applied the vibrometer with exhausting diaphragm, and found it very agreeable to the patient, producing a sound resembling a machine-shop. On May 29 the throat was found to be inflamed and filled up with mucus; it was sprayed with antiseptic wash, and later with liquid albolene (f℥v), camphor and menthol (āā gr. ijss) in solution. I introduced the catheter and opened both Eustachian tubes, and also touched the throat with a solution of potassium iodid (gr. xx), iodin (gr. x), and glycerin (f℥j). The patient was not willing to use the vibrometer, the weather being damp and rainy. On June 6 the hearing was very much improved, also the condition of the nose and throat. He liked the vibrometer and thought it would improve him. He now left for Europe, returning in September; but was then so well that he is satisfied with keeping his Eustachian tube opened without the vibrometer. He calls only when his hearing becomes impaired.

Case VII.—Mrs. I. B. S., aged thirty-nine, had deafness with blowing sound in the back of the

head and ears, of twelve years' duration; she had sore-throat and headache, and was gradually becoming deaf; there was no discharge and no pain; she had various subjective sounds, such as boiling, buzzing, roaring, beating, etc. Bone-conduction was weak on the left, and there was diminished air-conduction on the right. The Eustachian tube was narrow, the meatus normal; hearing was improved under catheterism, the hammer-handle not seen. The treatment before coming was by the Politzer, etc. Under careful treatment of the throat, the nose, the use of Delstanché's masseur and the Eustachian catheter with vapor of ether and iodin at home, she gradually improved, for right from 6/35, left, 12/35 until May 3, it was right, 18/36, left, 12/36; on May 23, right, 10/36, left, 13/36. On May 26 I used the vibrometer, the musical note of two strings, and after the massage and exhaust it left loud noises in the right, and the following day I received the following note: "So far in your treatment by the vibrometer I have noticed no effect whatever. If anything I have been a little more deaf than usual, but attribute that to the dampness after a severe storm." On May 28, hearing after treatment was, left, 15/36, right, 12/36, with sounds of hissing. I gave her that form of motion by the vibrometer, and she thought the noises were less. I exhausted the middle ear and touched the membrane with a solution of silver nitrate, also treated the throat with a solution of compound iodin. On June 4 she was much improved in hearing. On June 8 the patient stated that she thought the vibrometer had made the noises worse. She had the roaring, pounding, and also the musical note. After using the exhaust, massage and opening tube with chloroform-vapor, she was able to hear 12/36 inches, right, and 15/36, left. She heard a clock eight feet off, but general conversation she was not able to follow. Her nose and throat and Eustachian tubes were in perfect order; she had no more severe headaches, and her pelvic organs have been attended to by her regular physician. On June 14 I added to her other treatment hypodermic injections of pilocarpin, a 2 per cent. solution, four drops. Right ear, 12/36, left, 18/36. She left for her summer vacation, and returned in October, but was not willing to use the vibrometer; her hearing continued about the same as when she left.

Case VIII.—Mrs. G. T., aged twenty-five, has had deafness since a miscarriage, and also an attack of influenza. The right ear heard the watch 36 inches on contact, left 1/36. On May 30th, after prolonged treatment in which I treated the nose, throat, and ear with various applications, up to June 6th, the right ear was 7½/36 and the left 8½/36. On June 12th, right ear 8½, left, 10/36. After the use of the vibrometer hearing was clouded for a time; after this it was better. She returned in the middle of October, having lost almost all she had gained, by a severe cold; after treatment she began again to improve.

Case IX.—Mrs. Isabella R., aged thirty-seven, had been deaf for eighteen years, caused by confinement, followed by a great deal of mental distress, as her daughter was born blind. The pain was intermittent, and the subjective sounds were of a boiling or buzzing character. She heard better in a noise, had diminished air-conduction and bone-conduction; the Eustachian tubes were opened by the Politzer air-douche; the meatus normal, the membrana tympani of a light color, clear, with deposit, and adherent. She heard a loud voice, the lips almost touching the auricle. With speaking-trumpet she only heard certain words. She has been under treatment of many physicians, aurists, and quacks; not improved, but was rather worse. I gave her treatment with the vibrometer without apparent effect. This was a case of true labyrinthine deafness.

Case X.—Miss R. E. C., thirty-six years of age, had been deaf for many years; so much so as only to be able to hear words spoken close to the ears in a very loud tone. The left, she stated, had been operated upon. The membrana tympani, then the malleus and incus, were first removed, and the oval window was elevated to relieve the stapes, but no improvement in hearing followed any one of these operations. The parts were filled by what is termed a pseudo-membrane. When standing by the vibrometer she could not hear the sound of it until the tubes were pressed deep into both ears, then she could hear it, even the low tones. The auditory canal of the right hear was normal, but the membrana tympani was thickened, depressed, and attached; the location of the attachments could be noticed after inflation. Her throat was sclerosed with atrophic pharyngitis, and there were many bands of adhesion in the left nostril; some of these, projecting entirely across the nostril, were removed. On introducing the Eustachian catheter the tube could be partially opened under chloroform-vapor. After removal of hypertrophic tissue she was not improved in her hearing and not able to hear her own watch, but, after the application of the vibrometer and opening the Eustachian tube, she could hear mine only now and then, but only on close contact. She suffered from frontal and occipital headaches, the lungs were weak and there was a family tendency to pulmonary tuberculosis. She had had diphtheria of a very severe character, followed by an otitis media purulenta, and her life had been despaired of. I applied the vibrometer for two weeks, every other day, with massage of the membrana tympani. On June 25th, there was no real satisfactory change. I applied then the solution of pilocarpin, intra-tympanically. She now uses the vibrometer fifteen minutes, and thinks she has improved. The only improvement from the first operation was the checking of the purulent discharge. She thinks she hears voices better, and is desirous of continuing the treatment.

Conclusions: 1. Imperfect hearing depends on so many causes that no treatment by any one of the mechanical means should be employed until a careful diagnosis has been made.

2. "Aural massage," with the use of condensation and rarefaction of the air in the external aural meatus and middle ear, will give mobility to the parts and cause absorption of foreign materials interfering with the hearing.

3. Pneumatic massage is useful in middle-ear disease in which there are adhesions to be removed or stretched.

4. No treatment of this kind will take the place of operations, for when all other means fail they must be resorted to, and with wonderful success in *properly selected cases.*

I have endeavored to condense the cases as much as possible, yet I desired to show that nothing was left undone to place the patient in a favorable condition for the action of these mechanical agencies. These details are necessary for the reason that so many cases have been published as *cured* recently without any details, while others use the same means and fail.

There are three other methods now in use for stimulating the deaf ear, all of which I have examined and employed alone with no better success: namely, the vibrophone, audiphone, and the musical-box and pressure-probe.

To stimulate the deaf ear. When "very deaf" patients cannot bear rough, grating, or shrill sounds, a pleasant agency is a small musical box (Cohen), on which is placed a cushion, and upon this the patient places the deaf ear, so that contact with it occurs every day for ten or fifteen minutes; this is to increase the mobility of the ossicles. Lucae has recommended an apparatus for increasing the mobility of the auditory ossicles in cases in which there is stiffness (ankylosis) accompanying a form of deafness in which the patient is not able to hear general conversation, and Rinne's experiment yields a negative result. It consists of a steel rod or pin at one end of which is a small conical depression for the reception of the short process. The pin goes through a conducting tube, and its other end touches a spiral spring fixed into the handle of the instrument, and yielding readily to pressure. In employing this "pressure-probe" or feathered sound, the patient's head is first fixed and the instrument introduced under a good light along the upper wall of the auditory canal toward the short process of the malleus. The latter is received in the hollow at the inner end of the probe, and sharp taps are then made against it—at first, one or two only, later, up to ten, to be repeated if the result is favorable. Lucae asserts (Gruber) that after the employment of this instrument the air-douche may be used with success. As almost all patients suffer pain on the slightest touch with a fine probe, a solution of cocain must be employed prior to the operation. The tip should also be covered with delicate oil-skin, else it will be found that excoriations will be produced. This operation is only justifiable in the hands of the competent aurist who is perfectly familiar with the parts. Improvement, which in some cases takes place after this painful operation, cannot be relied upon without treating the middle ear at the same time.

SYPHILIS AND "APEX-CATARRH."

BY HOWARD S. STRAIGHT, A.M., M.D.,
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CASES of syphilis and apex-catarrh are of frequent occurrence and of great importance. My knowledge of this class of cases has been obtained by observation. There is, I think, little literature upon the subject. The importance of an early recognition of all the factors in such cases was impressed upon me a number of years ago, and a longer experience has only confirmed my opinion. No better name for this class of cases has suggested itself than that chosen. The term, mixed infection of syphilis and tuberculosis, has been suggested, but the catarrh at the apex or apices of the lungs is non-tuberculous, and remains so in the majority of cases. If the catarrh at the apex lowers the vitality and resistance of the cells sufficiently to admit the growth and development of the tubercle-bacillus a localized tuberculosis results. As I have observed, the great majority of these cases of apex-catarrh recover, and the most reasonable explanation of their pathology is that they are simply catarrhal in character. Why such a small proportion of cases of apex-catarrh become tuberculous is not explained. Most cases recover within a few months. The explanation may be that the vitality of the cells is not sufficiently lowered to make possible the growth and development of the tubercle-bacillus.

CASE I.—Four years ago I was consulted by a woman forty-five years of age, who had separated from her husband fifteen years before on account of his bad habits. Her sister, a few years younger, had been under my care for three months with an apex-catarrh, and had improved very much. Upon comparing symptoms they concluded that they both had the same disease. The elder sister had been under the care of two very competent physicians for about two months. She had had a large specific ulcer on the pharynx, and a syphilitic periositis of each tibia. Her suffering from the pain had been intense in the beginning. The ulceration of the pharynx had healed. The active manifestations of the periostitis had also disappeared, but the part was still tender on gentle percussion. Her medication had been mixed treatment with anodynes when necessary.

Within three months she had lost fifteen pounds in flesh. She was slightly anemic, and her tongue showed a disturbance of the gastro-intestinal tract. Her pulse was 96, and the temperature was 99.6°. Examination of the chest revealed in the left infra-clavicular region a well-marked apex-catarrh. At the right apex much less could be detected, although she had transference of heart-sounds and suspicious auscultatory signs. The specific treatment was not changed, and in addition she was given creosote, at

first in doses of ℥jss, four times a day, and later in double this dosage. She improved promptly. She was kept under continuous observation for five months, during three of which she had a slight rise of temperature in the afternoon and evening. After this time she ceased her visits, as she considered herself well. After discontinuing her medicine for two months she began to feel badly again, and returned, and she was again put upon the old treatment, with prompt improvement, and her treatment was continued for two months. For two years she would occasionally return whenever she began to feel badly again, and would take her medicine for a few weeks, and then would cease her visits. When last seen her chest-signs had completely disappeared.

Slight fever in late syphilis occurs, but it disappears within a few days under anti-syphilitic treatment. This patient had had such treatment for weeks, and my treatment was not different as far as the specific disease was concerned. The disease at the apex had simply been overlooked.

Case XI.—An intelligent woman, twenty-five years old, married one year, came under my care in the John Huntington Dispensary in May, 1894. She had lost flesh markedly, was quite anemic, had felt depressed, and had tired easily for six months. Her menses had been regular and normal. She made no special complaint except as to the throat; the temperature was 100°; and the pulse 108. She had an ulceration as large as a quarter-dollar at the upper part of the oro-pharynx, and also an induration of the upper lip. Four years before she had had an ulcer and an induration of the lip, which had never altogether disappeared. The induration and enlargement had become more marked during the two months before she came under observation. They were undoubtedly specific, but this fact had been overlooked or had escaped notice, and she had received no constitutional treatment. When the induration upon the lip first occurred she had had no other manifestations of syphilis, nor at any time later until the ulcer appeared. She disclaims any knowledge as to the mode of contagion. When first seen the induration of the lip was as large as the tip of the little finger, and this and the ulcer in the throat were the only manifestations of the disease. Chest-examination revealed a bilateral apex-catarrh, most marked on the left. She was given mixed treatment and creosote. The improvement in the specific manifestations was rapid, but it was a number of weeks before the depression became notably less marked. The improvement of the ulcer and induration of the lip was as rapid as in an uncomplicated case. The temperature continued at about 100° for three months; the pulse was slightly rapid for a few weeks, and at the present time pulse and temperature are normal. She has gained a few pounds in flesh and very much in strength; and the chest-signs have become stationary. She still has transference of heart-sounds, slight cog-wheel breathing, shortened inspiration, etc. She should continue the creosote for months, as well as the mixed treatment. She will recover so far as the chest-complication is concerned. My reason for this statement is that the catarrhal process began at the left apex, and progressed to a certain point; it then began at the right apex, and the progression at the left ceased and has begun to clear up. When a case of apex-catarrh becomes an incipient pulmonary tuberculosis the physical signs at the apex at which the disease first occurred always continue more marked than at the other apex. I have watched this class of cases for years, and have never seen an exception to this rule.

Case III.—A girl twenty-two years of age was sent to my department in the Dispensary, April 23, 1894. Six weeks before, she had been admitted to the Infirmary Hospital of Cleveland, and for a month before going to the infirmary she had had two ulcers upon the genitals. When admitted she still had the local sores and rheumatism in the right knee. The ulcers healed in a short time under local treatment only. She took something for the pain in her knee, but when the symptoms passed away the medicine was discontinued. Upon obtaning this history my conclusion was that the lesions upon the genitals had been considered chancroidal. She came complaining of her throat, presenting a general slight inflammation of the pharynx and larynx, but nothing characteristic of syphilis. The temperature was 99°, the pulse 90. She had no other manifestation of syphilis. Examination of the external genitals yielded only negative evidence. She still complained of some pain and tenderness in the right knee, worse at times, and she was slightly anemic. Up to the time of entering the infirmary she had felt well. Since that time she had felt tired and less vigorous than usual. The chest-examination revealed next to nothing, but the condition of the left apex was suspicious. Whether there was a slight transference of heart-sounds was doubtful. The diagnosis made was subacute rheumatism of the right knee and pharyngo-laryngitis. Whether the inflammation of the pharynx and larynx was a local manifestation due to rheumatism, or the local manifestation of a developing syphilis, or the local catarrhal condition that so often precedes any positive chest-signs in a developing apex-catarrh, or a local inflammation simply, was the question to decide, and it was impossible to decide it. As far as the possible syphilitic element was concerned, I concluded to wait. She was given sodium salicylate and creosote, and the throat was painted with silver nitrate. The case was seen daily for a short time. The second day the pulse was still 90, but the temperature was 99.3°. The slight rapidity of the pulse and the slight rise in temperature continued on succeeding visits. The pain in the knee promptly disappeared, and the throat-symptoms were somewhat relieved; but after watching her for a few days I became convinced that there was something more in the constitutional condition than had yet appeared. Whether it was a developing apex-catarrh, or syphilis, or both, could not be decided. After observing the case for ten days the patient developed unmistakable syphilitic manifestations: an eruption about the mouth, a mucous patch upon the right tonsil, and an ulcera-

tion and induration in the fourchet. The sodium salicylate was stopped and mercuric chlorid was substituted. A reëxamination of the chest revealed nothing positive. The question still concerned the left apex. Temperature and pulse remained as before. There was no change in either after the patient had taken anti-syphilitic treatment for two weeks. The local specific manifestations rapidly disappeared, but the throat-symptoms remained much the same. There was a loss of five pounds in flesh the first three weeks after the woman came under observation. The chest was examined every ten days. The creosote had been continued because the temperature did not fall to the normal after the ordering of the bichlorid. Five weeks after the first visit the physical signs at the left apex became positive. She had an apex-catarrh. From this time the catarrh at the apex pursued the ordinary course. After two months the patient began to gain flesh and strength. She had, however, slight fever and rapidity of pulse for fully four months after first presenting herself. Her medication has consisted of mercury and creosote. The chest-signs have nearly disappeared. The specific manifestations disappeared according to the rule.

The diagnosis in this case was certainly very much mixed. Viewing the case after five months' treatment the course adopted in the start was certainly wise. The slight fever was important, as it occurs in patients with a developing syphilis, but it subsides within a week after the administration of a mercurial. It also occurs in patients who are developing an apex-catarrh, although the pulse may be normal. While the slight fever in syphilis disappears almost at once under mercury, the slight fever in an apex-case continues for weeks, perhaps months, in spite of every treatment. Patients with a developing apex-catarrh also have slight fever sometimes for weeks before a positive opinion can be given as to the physical signs.

Whether there is necessarily any connection between the syphilis and the apex-catarrh in cases like these is a doubtful question. It would be a reasonable inference to believe that the apex-catarrh developed because of the depressing effects of the syphilitic poison. Apex-catarrh certainly occurs as a result of lowering conditions, but only in a small proportion of syphilitic patients. I see so many cases of apex-catarrh in patients in whose life and surroundings no adequate cause for such development appears that I have wondered whether its occurrence in the syphilitic patient might not be a coincidence. It has also been questioned whether the local inflammation of the capillary bronchial tubes might not be due to the efforts of Nature to eliminate the poison due to syphilis through this part of the body. This does not seem reasonable, because an apex-catarrh only exceptionally occurs in syphilitic cases. I could much more easily understand how the catarrh at the apex in Cases I and II could be due to the specific poison than in Case III, in which the manifestations seemed almost earlier than the specific manifestations. If this condition of mixed infection occurred most often in delicate patients, one could better understand how the one might be due to the other. But this has not been my experience. The prognosis as to the apex-catarrh seems to be as good as in an uncomplicated case.

Although this statement does not seem reasonable, I have yet to see, however, a case of apex-catarrh in a syphilitic that did not recover. Each condition ought to be treated as if the other did not exist. Creosote, or one of its derivatives, is the best remedy for the catarrh. Patients recover, however, under any form of tonic treatment. Creosote relieves the subjective symptoms better than any other remedy with which I am acquainted, and is a brilliant remedy in such conditions. The physician who treats these cases of mixed infection with antisyphilitics and tonics, and knows nothing of the catarrh at the apex, will, perhaps, have as good results as any one; but the attendant who discovers all the factors in the case is certainly in a better position to deal wisely with his case. If the temperature and pulse are not carefully observed the physician may not even suspect any chest-complication. The slight anemia and all the other symptoms of an apex-catarrh are so easily accounted for in a patient who has syphilis that one's eyes may be blinded to any other constitutional condition. The complications noted in these three cases certainly explain the reason why a certain proportion of syphilitic cases pursue an unusual course.

A NEW AND RAPID METHOD OF DEALING WITH INTRA-LIGAMENTOUS FIBRO-MYOMATA.

By WILLIAM R. PRYOR, M.D.,
of New York;
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So satisfactory has become our technique in removing the diseased uterus that there is apparently not much room left for improvement. Any modification must be trivial; but the one I offer for trial has proved of such value to me that I am induced to publish it. In removing intra-ligamentous fibro-myomata three elements are present which do not require the surgeon's attention in ordinary cases. There is great risk of wounding the ureter. The sinuses over the tumor are huge, and give rise to disagreeable bleeding when the capsule is split, and because of inherent difficulties the operation is generally much longer than is desired.

The method I have to describe is simplicity itself, and reduces the time of operating so materially as

to appeal at once to the surgeon who has dealt with these cases. These tumors imperatively demand radical procedure, and preclude the possibility of adopting any procrastinating and so-called conservative measures. If I am right in my conclusions as to the merits and applicability of this operation, much of the incentive for Kelly's very beautiful ureteral work will be absent, even though the passage of ureteral sounds as guides were so easy of execution as to become a definite part of our routine in the treatment of these tumors.

Operation. The ovary and tube on the free side are tied off between two ligatures, which are not locked. The broad ligament of this side is then cut between these two ligatures down to a point approaching the uterine artery. The posterior cul-de-sac is now opened and the vagina entered. Through this opening the finger of the left hand is inserted. This is a great advantage, as it enables the operator to guide his Deschamps needle and to more accurately appreciate the exact anatomy of the parts. The bladder is now dissected away from the tumor, and the vagina entered in front. The uterine artery of the free side is now secured between two ligatures in the usual way. So far the operation has proceeded as in any ordinary ablation of the uterus.

The next step is to secure the ovarian artery over the intra-ligamentous nodule. So variably situated is the tube in relation to these growths that no one fixed plan can be adopted in all cases. In one of my cases, for example, the tube was very long, with a broad mesosalpinx. I tied the tube close to the uterus, then its mesentery well out over the intra-ligamentous nodule. The mesosalpinx was then cut to the side of the uterus, the ovary and outer ligature being left over the tumor and never removed at all.

The really important step is the next. We have controlled both ovarian vessels and the uterine artery on the free side. The vagina is entirely dissected from the cervix before, behind, and on the free side. The uterus remains attached by the intra-ligamentous nodule to the broad ligament, the vagina and the pelvic floor. Heretofore it has been the custom to split the capsule of the tumor above and shell out the nodule from between the severed folds of the broad ligament. In doing this there is much time lost, a good deal of hemorrhage developed from the large sinuses that cover these nodules, and very often has the ureter been wounded. This latter structure may lie beneath the nodule, over it, in front of it, or even posteriorly. We never know just where to find it, and there is always great risk of wounding it. There is, however, one spot in which it is never found, and that is directly against the cervix, in the sulcus formed by the junction of the tumor and the uterus. The position of the uterine artery to those growths is fairly constant. Usually it lies beneath the tumor. Should the nodule spring from below the internal os, in all probability it would cause complete obliteration of the uterine artery, for the periphery of these growths is against the internal iliac artery from which the uterine artery springs. I have never met with such a case. All the specimens I have examined showed the uterine artery entering the uterus below the tumor. Discovering this, and in order to save time, as well as to avoid splitting the capsule of the tumor, I conceived the operation which, in three cases, I have successfully carried out.

The uterus having been freed, as described, it is tilted far over to the involved side by an assistant, and the large Deschamps needle is passed through the vaginal mucous membrane, so as to sweep around all the tissues between the vagina and the tumor. Great force is necessary, as the needle must hug the cervix closely, and must pass right up to the tumor. It is made to emerge into the vagina, and the uterine artery is tied by one ligature. The tissues are cut close to the cervix up to the sulcus, between the tumor and the cervix. It is now a perfectly easy matter to peel the fibroid out of the broad ligament with the fingers alone. It will come out of its bed as easily as a mandarin-orange can be divested of its rind. Apart from the absolute freedom from any danger to the ureter, this procedure will commend itself to the surgeon as most valuable in that it will shorten the time of operation very materially. It will not be necessary to ligate veins in the broad ligament or to suture the rent made in it. It renders most easy an operation heretofore very difficult and fraught with great danger to the patient, owing to hemorrhage and the risk of wounding the ureter.

If the tube is spread out over the capsule it may be tied close to the uterus, and left in the body with the capsule.

A further advantage of this operation is the ability to render all raw surfaces extra-peritoneal.

The ligatures on the uterine arteries are left long and turned into the vagina. The vagina is packed with iodoform-gauze in such a way that its upper end is as high as the cavity in the capsule.

The great point, let me repeat, is to secure the vessels above and below the tumor close to the uterus, and *before* enucleation is begun. When the enucleation is made it is from below, and the tumor is shelled out of an intact capsule, without bleeding, as the attachment of the broad ligament to the tumor is very loose. At most, five ligatures are needed.

CLINICAL LECTURE.

IDIOPATHIC MUSCULAR ATROPHY.[1]

BY CHARLES W. BURR, M.D.,
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I PROPOSE to study with you to-day a disease, or rather a group of diseases, characterized by progressive muscular wasting and paralysis, caused by degeneration of the muscles themselves, and not by a lesion of the nervous system. The affection, therefore, does not properly belong, in a strictly scientific classification, among nervous diseases, but since its symptoms are all nervous and its differential diagnosis is from diseases of the cord and nerve-trunks, we have full justification for its study.

At first glance the boy, D. F. (Fig. 1.), looks remarkably robust. The calves are large, the bony frame well developed, the facial expression intelligent, and the complexion ruddy. But, as you see, he cannot stand, can, indeed, scarcely move the legs at all, and while in the arms power of movement in all directions is preserved, yet the movements are awkward, and cannot be made against even slight resistance. The neck-muscles, on the other hand, are fairly strong, and those of the face perfect, so that he can smile, and frown, and wink without difficulty. On examining the muscles more closely we find that while some are enlarged, are apparently hypertrophied, others are small, are distinctly atrophied. The calves, loins, and infra-spinati are large, hard, and firm. The thighs are soft and flabby, but not small while the shoulder-muscles, the lower part of the great pectorals and the muscles of the upper arms are distinctly softer and smaller than normal. The forearms are wasted but little, if any, and the intrinsic muscles of the hands not at all. Many of the muscles, those enlarged most and those most atrophied, give no electric reaction to either the faradic or the galvanic current, and in those which do react the reaction is reduced to both currents. Reaction of degeneration is nowhere present. Your first thought, no doubt, was that the tremendously enlarged calves and loins indicated great strength, but you can now see that these are the weakest parts of the body.

The mechanical reflex of the muscles, the contraction obtained by percussion of the muscle itself, is everywhere abolished, even in the great pectorals, in which in health it is ordinarily most marked and most readily obtained. Not only is there no contraction of the muscle in its entirety, but also the local contraction at the seat of percussion, the "humping" of a few fibers, is absent. The knee-jerk, and indeed all the tendon-jerks, are absent. Nowhere do we observe any fibrillary twitching. Sensation is normal to touch, pain, and temperature. The special nerves are good. The patient has complete control of the bladder and rectum. There are no trophic changes in skin, bones, or joints. There is slight talipes equinus on both sides. Subjectively the boy complains of nothing but muscular weakness. He eats well, digests well, sleeps well, and suffers no pain.

I have here a second boy affected in the same way,

Fig. 1.

Pseudo-hypertropic muscular paralysis.

Fig. 2.

Simple idiopathic muscular atrophy.

[1] Clinical Lecture delivered at the Medico-Chirurgical Hospital, September 10, 1894.

but to a less degree, so that he is still able to walk, and I wish you to watch his gait and method of getting up from the ground and lying down, for it is characteristic. You notice as he stands his feet are placed widely apart, his shoulders thrown back, and his abdomen forward, producing a large anterior curvature of the lower spine. His gait is waddling, duck-like, the body being twisted and thrown to one or the other side, corresponding to the foot which is upon the ground. Most characteristic of all, watch him as he rises. He rolls over on his stomach, plants his toes firmly against the floor, gets "on all fours," and then putting his hands with a jerk, one after the other, on knees and thighs, pushes the trunk up. As has been well said by Gowers, he climbs up his own legs. On lying down he goes through precisely the reverse procedure, as you see.

The third boy, L. X. (Fig. 2), presents a striking contrast to the others, and is an example of a much rarer condition. He looks like a living skeleton. The skin is too big for the body, and hangs loosely from it. The wasting is well-nigh universal, affecting not only arms, legs and trunk, but also (and note this particularly) the face, as is shown by the projecting eyeballs, the slightly protuberant lower lip, the inability to pout, the curiously dull expression called "the myopathic face," due to the absence of some of the facial lines. Except for the absence of enlarged muscles and the involvement of the face, his symptoms are similar to those of the other boys, and his condition the same.

Since now we have learned all we can from examination of the patients, for I know nothing of their previous lives, let us consider for a few moments the causation and mode of progress of the disease. You probably wonder why I have presented the third case as an example of the disease affecting the other two. Great as the contrast is, the dissimilarity is to a large degree superficial, and in all the underlying cause is the same. Clinically, however, we separate them, calling the one pseudo-hypertrophic muscular paralysis, the other simple idiopathic muscular atrophy. The latter has been subdivided into several types according to the distribution of the wasting. Thus there is the juvenile type of Erb, in which the muscles of the shoulders, upper arms, and thigh, and the gluteal muscles are affected; and the facio-scapulo-humeral type, in which the face is attacked first. Other subdivisions have been made, but we may without loss disregard them. No hard-and-fast line can be drawn between any of the types, since mixed cases are met with.

The disease is developmental, due to a fundamental defect in the tissues that form muscle, but what the defect is and its cause we do not know. The affection is not congenital in the sense of showing symptoms at birth, but it is congenital in origin. It occurs far more frequently in family groups than in isolated cases. In the hypertrophic form there is never, or almost never, direct inheritance from parent to child, but transmission is through the healthy female line; that is to say, women who are themselves not affected may yet, if one may say so, possess the potentiality of the disease. In the simple form there is greater possibility of direct inheritance, and females are far more frequently affected. Pseudo-muscular hypertrophy begins in late infancy or early childhood, idiopathic atrophy a little later, and sometimes, though rarely, in adult life. The course of events in pseudo hypertrophy is as follows: The child, who has before walked, will begin to stumble and may complain a little of pain. He tires easily, and says his legs are weak. Now, at the first, this is all, and no diagnosis can be made, though by the exclusion of other diseases we may be able to more than shrewdly guess what will be forthcoming. Later, the calves begin to be enlarged and firm, and muscular weakness increases slowly but surely, until a child, apparently a young giant, is in truth a helpless weakling. All muscles do not enlarge. The pseudo-hypertrophy is usually in the calves, the extensors of the legs, the glutei, the loins, deltoids and infra-spinati. In rare cases the tongue is affected. Certain muscles, as for example the lower part of the great pectorals and the latissimus dorsi, atrophy without previous enlargement. As time passes the enlarged muscles also atrophy, and contortions and contractions appear, the legs being flexed upon the thighs, the thighs upon the abdomen. In the simple form the symptoms may begin, as already stated, in the face, shoulders, or legs.

To sum up, we may say that idiopathic muscular atrophy is a chronic, inherited, developmental disease characterized by progressive wasting and paralysis, with or without muscular hypertrophy, gradually diminishing tendon-reflexes and muscle-reflexes, gradually diminishing electric reaction, without trophic changes, with normal sensation, and with complete control of bladder and rectum.

Using this as a working definition, let us see how we can differentiate this affection from wasting due to other causes. What are the other causes? First, and for our purpose least important, is wasting due to cerebral disease. For a long time it was denied that this existed, but of late years several cases have been reported in which tumors of the motor area, without disease of the anterior cordal gray matter, were accompanied by wasting in the palsied parts, and I do not mean the merely slight wasting due to disuse, but distinct atrophy. We are absolutely ignorant of the cause of this condition, but its distribution, hemiplegic or monoplegic, and the preceding palsy, make it impossible to be mistaken for idiopathic atrophy. Wasting from bulbar disease also needs only to be mentioned. Its accompanying symptoms differentiate it. Most important and most difficult is the diagnosis from atrophy due to spinal-cord disease, the so-called myelopathies. Any disease involving degeneration of the motor cells in the anterior gray matter will show wasting in the muscles with which those cells are connected. Hence it follows that wasting is found in many cordal diseases and with varying accompanying symptoms, according to what other parts of the cord are involved. All in which increased tendon- and muscle-reflexo jerks and fibrillary twitching occur can be at once excluded, since, as we have seen in idiopathic atrophy, the so-called myopathies, the reflexes gradually diminish until they become extinct. The affection that most nearly simulates a myopathy is chronic anterior poliomyelitis, or progressive spinal muscular atrophy. But this is a disease almost exclusively of adult life. The wasting begins in the thenar and hypothenar eminences, or deltoid muscle, and while the tendon-jerks are abolished unless the lateral tracts be affected, in which case they are exaggerated, the muscle-jerks are increased and fibrillary twitching is common. There may be one of several

changes in the electric reactions, including reaction of degeneration. Acute anterior poliomyelitis may, if first seen some time after the attack, deceive at first sight, but the acute onset, the reaction of degeneration, and the distribution of the palsy, in one leg or arm, or two or even three extremities, suffices to differentiate it. In chronic multiple neuritis the method of onset and progress, the distribution, the frequent sensory symptoms, the possible ataxia, the palsy more intense than the wasting, are all points in differential diagnosis.

In myopathies there is ordinarily an inheritance; there are likely to be several cases in a generation; the onset is early in life; trophic changes never occur, while in myelopathies inheritance plays no part; the disease almost invariably begins later in life; trophic changes are not infrequent, and hypertrophy never occurs.

Senator has described a form of subacute or chronic myositis—an inflammation, you understand, not a degeneration—in which there is paralysis and wasting, but the the intense pain from pressure on the muscles and the course of the disease differentiate it.

Lastly, to complicate matters, there is a type of wasting likely to occur in family groups, and beginning early in life in the extensors of the big toe, appearing later in the common extensors and peroneal group, and thence extending. Reaction of degeneration and fibrillary twitching may or may not be present, and hypertrophy never occurs. It is the so-called peroneal type of Charcot and Tooth. It is probable that the situation of the lesion is not constant, but it may be in the anterior motor cells of the cord, the nerve-trunks or the muscles, since on no other grounds can we explain the varying electric reactions and reflexes.

The prognosis as to recovery in pseudo-muscular hypertrophy is absolutely bad. Death is almost inevitable within a few years after the patient becomes bedridden. In simple atrophy the course of the disease is longer, and there may be arrest, and the patient may reach old age.

Treatment is absolutely without curative influence. Electricity and massage will, however, do much to keep patients in the best possible condition, and gymnastics, when possible, may stimulate the development of what little muscular tissue is present. Drugs so far have proved useless.

CLINICAL MEMORANDA.

A CASE OF SYPHILITIC CICATRICIAL ADHESION OF THE TONGUE TO THE PALATE AND PHARYNGEAL WALLS, WITH NOTES OF OPERATION.[1]

By E. LARUE VANSANT, M.D.,

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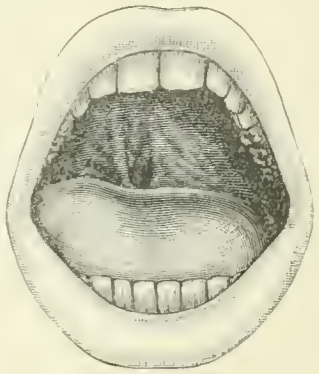
The patient, Michael B., aged forty-five years, miner by occupation, gave a history of syphilis contracted in October, 1877, followed by secondary symptoms. Syphilitic ulcers occurred on the shins, elbows, and back during the winter of 1877–78. In 1885 ulceration of the dorsum of the tongue and of the soft palate occurred, and this continued with occasional periods of healing, followed each time, however, by renewed ulceration until the autumn of 1889, when it rapidly extended from the dorsum to the sides of the tongue and to the internal



surface of the gums, and severely attacked the palate. This condition was shortly followed by cicatricial adhesion of the tongue to the inner surface of the gums and to the palate. The adhesion commenced first on the right lateral border of the tongue, and extended from the left to the center, then from the left lateral border, extending from the right to the center. After commencing, the adhesions progressed very rapidly, so much so that after six weeks the only opening left in the scar was a small one, about one-eighth of an inch in diameter, situated just above the middle of the tongue.

In December, 1889, the patient presented himself to Dr. W. L. Estes, of South Bethlehem, Pa., for operation. Dr. Estes has kindly furnished me the following notes of the operation performed at that time: "I passed ligatures or sutures through the anterior pillars of the fauces, and with scissors and cautery made an extensive dissection of the cicatricial tissue, working back to the epiglottis. I cut through both anterior and posterior pillars, and sutured the cut surfaces, so that I hoped to prevent further adhesions, and then dissected the tongue away from the gums, and turned the raw surfaces in on the sides of the tongue by sutures, while the tongue was drawn forward by a ligature passed through its tip. When I operated there was a little round opening scarcely a quarter of an inch in diameter. As soon as the patient returned home the adhesions or contractions began again. For several weeks I kept a good fine opening by stretching and another snipping. The man, however, drifted out of my hands, and I was not allowed to do any further operations."

In the spring of 1890 the patient consulted Dr. Frederick G. Ibach, of Mauch Chunk, to whom I am indebted for the following notes of his operations: "I operated on him under cocain with the cautery-knife, removing the greater part of the mass, which at this time filled up all the pharyngeal space. He was put on iodid with bichlorid, and about eight weeks after the first operation the mass had again formed, leaving an opening—through which he breathed and took nourishment—not a quarter of an inch in diameter. From that time up to

[1] Read before the Section on Otology and Laryngology of the College of Physicians of Philadelphia, November 6, 1894.

the time he came to you I gave him relief with the knife —at least once every ten weeks."

During 1890 ulcerations, followed by adhesions, occurred in the pharynx and on the posterior surface of the soft palate, and in October of the same year the patient found he could no longer breathe through the nose.

In January, 1893, the patient was sent to me by Dr. Ibach for treatment. His condition at that time was very pitiable; he was thin and haggard, suffering from insufficient nourishment, and breathing with great difficulty. The opening was so small, and at times so obstructed by secretion, that each respiration was accompanied by a loud whistling, wheezing sound; indeed, at times the man seemed about to be strangled. The tongue was found bound to the internal surface of the gums and to the roof of the mouth by a thick cicatrix, which extended across the dorsum of the tongue opposite the back molar teeth. A little to the left of the center of this cicatrix there was a small circular opening three-eighths of an inch in diameter. Passing a probe through this opening it was found that a narrow canal, some three inches long, ran somewhat diagonally from left to right, and communicated with the pharynx to the right of the epiglottis. This canal was so constricted at points that an ordinary grooved director of a pocket-case could barely be passed through it. Upon examining the nasal cavities they were found to be free and in fairly normal condition. A probe passed through the nostrils would meet an obstruction in the pharynx, and could not be carried lower. The patient was unable to breathe through the nose, and the only channel for nourishment and respiration was the narrow canal before mentioned.

Physical examination of the chest showed nothing abnormal, except the stridulous breathing through the narrow opening in the mouth, and which could be heard all over the chest.

Prof. Wm. S. Forbes and Prof. J. Solis-Cohen kindly saw the case with me in consultation, and it was decided that an operation, consisting of the entire removal of the scar-tissue, be performed. The operation was done by Prof. Wm. S. Forbes, with the assistance of Dr. A. Hewson and myself, at the Jefferson Hospital; tracheotomy was first performed, a hypodermic injection of cocain over the trachea producing sufficient local anesthesia to permit of this. General anesthesia was then obtained by administering chloroform through the tracheotomy-tube. A semi-circular incision was then made under the chin, separating the soft tissues from the internal surface of the lower maxilla, and the tongue was drawn forward and downward through this opening. This procedure gave the operator a clear field of operation through the open mouth. The scar-tissue was first separated at its upper border; in order to do this it was found necessary to extend the incision to the hard palate. The sides of the tongue were then dissected from the gums and the tongue drawn further forward; four abscesses, two on each side, were then broken into; these abscesses seemed to be gummatous remains of the tonsils, and contained each about one ounce of a foul greenish pus. The scar was then dissected from the tongue, the necessary incision reaching to and laying bare the transverse muscle of the tongue. Back of the abscesses a second scar was found, forming another almost imperforate barrier or diaphragm. This scar, which attached the base of the tongue to the posterior and lateral walls of the pharynx, extended down to just above the level of the epiglottis and above to the palate, together with prolongations that ran up the sides of the pharynx to the vault. Careful dissection was again made, and the entire cicatrix removed. The edges of the wound in the palate and tongue were then thoroughly united by sutures, and the opening under the chin closed. A ligature was passed through the tip of the tongue and carried out of the mouth to prevent the tongue from falling back. After the operation the patient improved rapidly in strength and weight, developing an enormous appetite. The tracheal wound entirely healed in about eight days. At the end of three weeks the scar-tissue commenced to re-form along the left wall of the pharynx; efforts were made to prevent adhesion by stretching and breaking the newly formed cicatrices; the patient, however, was rebellious, and at the end of five weeks insisted upon returning to his home.

On the 12th of April, 1893, he again consulted me, his condition being pretty much the same as before the operation in January. The adhesion, he said, had returned in six or seven weeks from the time of operation, and the throat had threatened to close entirely. In March, he said, his breathing had become so difficult that he had heated a table-knife in the fire and burned an opening through the scar. Upon examining the patient I found that the scars had completely re-formed, the tongue being adherent as before. The opening, however, was somewhat larger, being about three-fourths of an inch long and perhaps one-eighth of an inch wide. Several days later another operation was undertaken by Prof. Joseph W. Hearn, with my assistance, at the Jefferson Hospital. In this operation cocain was injected into the cicatrix, and no general anesthetic was given. An inverted V-shaped mass about three-fourths of an inch long and one inch wide was removed from the scar just above the opening; it was hoped that the rest of the scar would retract, and thus keep the opening free. After-treatment was again instituted to keep the opening from closing, but after five weeks the patient again insisted upon leaving the city. In about eight weeks the cicatrix had again returned to about its former condition. The adhesion in each instance recommenced at the sides of the tongue and extended toward the center. After this operation I did not see the patient again, but Dr. Ibach writes me that he presented himself about every two months at his office to have an incision made in the scar. In August, 1894, his condition became very desperate, the gradual closing of the opening producing great debility from insufficient nourishment and want of air. He was advised to have a tracheotomy done and wear a tube permanently. This and further proposed operations were refused by the patient, and in the latter part of August he died.

In considering the results of the different operations it will be noticed that the time necessary to replace and reunite the cicatricial tissue was about the same after each operation—namely, from six to eight weeks—and this, notwithstanding the great difference in the extent and character of the operations. In fact, the contraction began as soon as the process of repair from the operations commenced. The necessity for a long-continued after-treatment in such cases is thus made forcibly evi-

dent. Such after-treatment should consist in dilating the orifice, and perhaps destroying any newly-formed cicatrices from time to time, until cicatrization should cease, leaving a sufficient opening; this would require many months' treatment.

It was my intention with this patient to try some form of dental plate after the operation that would act as an obturator, and perhaps such an obturator associated with stretching, etc., would have given a permanent opening, but it was impossible to keep the patient under treatment.

MEDICAL PROGRESS.

Secondary Suture of the Sciatic Nerve.—Freeman (*Medical Record*, No. 1247, p. 409) has reported the case of a colored boy, nineteen years old, who received a cut across the left thigh, the incision reaching to the bone, and extending two inches below the trochanter major and backward and downward for a distance of about five inches. The wound soon healed, but sensation remained absent from the foot, and the leg could not be used freely. Twenty-five months after the original injury the muscles of the leg and foot were paralyzed and wasted, and there was also some atrophy of the thigh. Sensation was wanting on the entire outer side of the leg and on the sole and dorsum of the foot, except in a line about one-and-a-half inches broad along the upper and inner aspect of the leg. The anesthetic area was dry and covered with scaly, whitish epithelium, and was clearly separated from the adjacent soft, dark and moist skin. There was edema of the foot, and the nails of two or three toes were missing. A large, deep trophic ulcer occupied the under surface of the heel.

Operation was proposed and acceded to. A longitudinal incision, six inches long, was made, with the line of the old cicatrix as the center. The inferior segment of the nerve, owing partially to its atrophy, was only found with some difficulty. The superior segment revealed itself at once by the spindle-shaped bulbous enlargement, the size of an English walnut, which occupied its extremity. This was removed by a wedge-shaped incision with its apex well within the normal nerve above. Below the old injury the nerve was much atrophied, its fibers spreading out and losing themselves in the cicatrix. These stringy fibers were separated as thoroughly as possible from the surrounding tissues, and the end of the nerve resected. The distal and proximal nerve-sections were then repeatedly and forcibly stretched with as much force as was considered safe, in order to bring them closer together. On flexing the knee and extending the hip it was possible to approximate the ends of the divided nerve, the separation between which had at first been at least four inches. Catgut sutures were employed, some being tied to portions of the neurilemma and others being introduced through the body of the nerve itself, the end of the distal segment being dovetailed into the V-shaped incision in the end of the proximal segment.

The wound united by first intention, the knee being retained in flexion and the hip in extension by plaster-of-Paris. On the third day after the operation it was found that sensation in the leg had returned. On the eighth day sensation had improved, and the scaly appearance of the skin over the entire leg was leaving. The ulcer on the foot also began to improve. At the end of two weeks the plaster splint was removed and the patient was instructed to straighten the leg slowly and carefully a little each day. On the outer surface of the foot, and more especially about the little toe, the power of feeling remained markedly deficient. In three or four days more sensation began to return in the foot, and in about three weeks the patient was walking on crutches. In the course of a month from the date of the operation the skin of the leg had recovered its softness and smoothness, while the ulcer had nearly healed. In places sensation was abnormally acute. Nearly a year after the operation the ulcer on the foot had not entirely disappeared. Two years after this the condition of the ulcer had become aggravated, while a second had appeared on the outer edge of the foot near the little toe. The condition was so troublesome that amputation of the foot was resorted to in order to relieve the patient of his encumbrance.

Extensive Resection of the Bowel for Tuberculosis; Implantation of the Ileum into the Colon; Extirpation of the Excluded Bowel.—Körte (*Archiv für klinische Chirurgie*, Band 48, Heft 4, p. 715) has reported the case of a man, twenty-five years old, who came under observation with symptoms of purulent peritonitis, operation evacuating large quantities of offensive pus. A fistula leading to the vermiform appendix remained, for the relief of which a secondary operation was performed, the appendix being removed. The appendix was in a state of chronic inflammation and presented two perforations communicating with adjacent adhesions. No evidence of tuberculosis could be detected. Nine months after the first operation a sausage-like tumor was detected upon the right side of the abdomen extending from the cecal region toward the costal arch. A third operation was performed, and the cecum and ascending colon were found thickened, while upon the serosa a small number of gray miliary tubercles were seen. Extirpation of all of the diseased structures was undertaken. The ileum was divided between two ligatures several centimeters above the ileo-cecal valve. Then the cecum and ascending colon were freed almost to the hepatic flexure. The intestinal wall was friable and tore in places, and the mucous membrane presented polypoid hyperplasias that were suspected to be carcinomatous. The mucous membrane was not healthy at the point of division, and, as there was a fear that a healthy surface might not be reached, the operation was suspended and an artificial anus created, to which the two ends of the bowel were sutured and surrounded with iodoform-gauze. Microscopic examination of the removed portion of the intestine disclosed tuberculosis of the mucous membrane. Seven months later a fourth operation was performed, 21 centimeters of the colon being additionally resected. Still, healthy mucous membrane was not reached. The opening in the colon was closed and an anastomotic communication established between the ileum and the colon. As matters did not improve three further operations were undertaken during the following seven months. Finally in the eighth operation the entire extent of diseased intestine was removed, including the remainder of the trans-

verse colon and the loop of the ileum sutured in the fourth operation, as well as a blind sac in the ileum remaining after the sixth operation. Thereafter there were no further complications, and with the aid of a truss the patient was able to engage in light book-binding.

Successful Gastrotomy for the Removal of Three Pocket-knives.—BECK (*Deutsche medicin Wochenschr*, No. 39, p. 760) has reported the case of a laborer, thirty-two years old, addicted to alcoholism, who for a period of five years indulged in the practice of swallowing indigestible bodies. At first these consisted of tacks, and somewhat later the man swallowed a rod of iron. These feats were usually followed by retching and epigastric pain, which compelled desistance for a few days, when they were again resumed. On one occasion the man, imitating a sword-swallower, swallowed a closed pocket-knife, without ulterior results and without a knowledge of its extrusion. Some time later, as the outcome of a wager, he swallowed two closed knives and a long lead-pencil. He complained of no bad effects, and failed to notice their passage by the bowel. Some months after this, under similar conditions, the man swallowed three knives. For two days he suffered no discomfort, but at the end of this time he began to complain of malaise, sweating, chilliness, loss of appetite, eructations of metallic taste, increased thirst, and pain in the epigastrium. Several days later the vomiting of bloodstained matter set in, with aggravation of the other symptoms. Palpation was attended with painfulness, and yielded a sense of circumscribed resistance in the epigastrium. The stomach was dilated and atonic, and an esophageal sound introduced into the stomach encountered a firm, movable body. The administration of laxatives being unattended with the passage of the foreign bodies, celiotomy was undertaken, and on exposure of the stomach the presence of the three knives was confirmed. The viscus was opened, and the foreign bodies with some difficulty removed. The cavity of the stomach was irrigated with boric-acid water, and the wound closed with silk sutures in three stages. The abdominal wound was then closed, and the usual dressings applied. The knives were respectively 4¼, 3½, and 2¾ inches long. All were somewhat corroded by the action of the gastric fluids. The progress of the case was perfectly afebrile and free from reaction, so that in the course of five weeks the patient was dismissed. It was not a long time, however, before he renewed his former practices, and swallowed two knives, one 4 inches and the other 3¾ inches long. These, however, it was impossible to expel by the administration of a soft, mushy diet, followed by laxatives.

Successful Celiotomy and Resection of the Bowel for Perforation in the Course of Typhoid Fever.—NETSCHAJEW and TROJANOW (*Bolnitschnaja gaseta Botkina*, No. 23; *St. Petersburger med. Woch.*, 1894, No. 36, Supplement, No. 8, p. 46) report the case of a man twenty-five years old, who came under observation, presenting the symptoms of a general peritonitis. He had been sick for about three weeks and had without known cause been seized with severe abdominal pain and a feeling of weakness. By exclusion, a diagnosis of peritonitis from perforation of a typhoid intestinal ulcer was made, and celiotomy was performed seventeen hours after the onset of the symptoms. The abdominal cavity was filled with sero-purulent and flocculent exudate. The serosa of the small intestine was turbid, hyperemic, and in places covered with flakes of fibrin. Some twenty centimeters from the ileo-cecal valve a small, round, pin-point opening was visible upon the free surface of the ileum, and from this gas and liquid feces escaped. An elliptic area, about four centimeters long, was removed from the bowel and the wound closed with Czerny-Lembert sutures of thin silk. After careful cleansing of the abdominal cavity with dry sterilized gauze all empty spaces were carefully tamponed. The abdominal wound was not sutured. The dressings were first changed on the seventh day, when the tampons were removed. The general condition continued good, and the temperature declined gradually in the course of three weeks. After the lapse of nine weeks the margins of the abdominal wound were freshened and sutured. The wound healed by primary intention and the patient made a good recovery.

The Presence of Diphtheria-bacilli in the Lungs of Children Dead of Diphtheria.—KUTSCHER (*Zeitschr. f. Hygiene*, xviii, 1; *Centralblatt f. Bakteriol. u. Parasitenk.*, Bd. xvi, No. 19, p. 791) made a study of the tissues from ten fatal cases of diphtheria, and found diphtheria-bacilli in the foci of broncho-pneumonia. The organisms were most abundant in the alveoli containing large numbers of cells, and were usually inclosed in the cells. Frequently streptococci were also found. The diphtheria-bacilli were also found in the perivascular lymph-spaces, and in smaller number in the bronchi. The organisms were found in the lungs in eight cases, in one instance in the kidneys, and in one instance in the liver.

THERAPEUTIC NOTES.

The Treatment of Diphtheria with the Antitoxin.—SCHIPPERS (*Week-bl. van het nederl. Tydschr. voor Geneesk.*, October 27; *British Medical Journal*, Epitome, No. 1767) has reported the case of a boy, five years old, in which in the course of a severe attack of diphtheria tracheotomy seemed urgent as a last resource. At this time, although the case appeared hopeless, an injection of Behring's antitoxin was made, the previous treatment with quinin and ferric chlorid, applications of ice and inhalation of steam being continued. In the course of twenty-four hours decided improvement had set in, and in a few days more the child was on the way to recovery.

SIMPSON (*British Medical Journal*, No. 1767, p. 1070) has reported three cases of diphtheria in the same household, one of which received 20 minims of Aronson's antitoxin on the third day and 40 minims on the fourth day. This one recovered; the other two died.

LEES (*British Medical Journal*, No. 1767, p. 1071) has reported the case of a child, two and-one-half years old, in which on the sixth day of an attack of diphtheria characterized by stridulous breathing, croupy cough, cyanosis and albuminuria, 10 minims of Aronson's antitoxin were injected, and later in the day 15 minims more; on the seventh day an injection of 10 minims was given. Improvement soon set in, and the case progressed to ultimate recovery. The belief is ex-

pressed that death would have taken place under any other method of treatment.

PHILLIPS (*British Medical Journal*, No. 1767, p. 1072) has reported a case of laryngeal diphtheria in a child four years old in which the performance of tracheotomy followed by an injection of 10 minims of Aronson's antitoxin led to a favorable outcome.

For several months Aronson's antitoxin has been employed in the diphtheria-wards of the St. Bartholomew's Hospital with distinctly good results.

ROMER (*Lancet*, No. 3715, p. 1090) has reported a case of diphtheria fatal from cardiac failure in a boy thirteen years old treated with the antitoxin. The treatment was, however, begun only on the tenth day, when 5 minims were injected; 6 minims more were injected on the eleventh day; 15 on the twelfth day, and some on the thirteenth day.

ROUÉ (*Lancet*, No. 3715, p. 1019) has reported a case of diphtheria in a child four years old in which tracheotomy became necessary and was performed for the relief of dyspnea. The temperature, however, rose, and it was feared that the false membrane was extending. An injection of 5 c.c. of the antitoxin was shortly followed by a decline in the temperature and amelioration of the other symptoms. The case is used to illustrate the combined effects of tracheotomy and the antitoxin. It is believed that the antitoxin alone would scarcely have been sufficient to relieve the dyspnea, but when the respiratory difficulty was removed by tracheotomy the antitoxin proved an indispensable aid.

VON RANKE (*Münchener medicinische Wochenschrift*, 1894, No. 45, p. 882) relates that from 1887 to 1893, inclusive, there came under observation in the Children's Hospital at Munich 1048 cases of diphtheria, of which 516 terminated fatally, a mortality of 49.2 per cent. Of the whole number 575 required either tracheotomy or intubation. Of the 473 treated exclusively with medicinal measures 136 terminated fatally, a mortality of 26 per cent. Of the number treated by operative measures 375 died, a mortality of 65.2 per cent. The cases that came under observation were principally of a severe type. It was at first determined to employ the antitoxin only in cases of laryngeal diphtheria, in order to obviate surgical interference. Investigation showed that from the beginning of the year 1889 to the close of the year 1893 intubation had been practised in 441 cases, of which 288 terminated fatally, a mortality of 65.3 per cent. The mortality had ranged in different years from 59.5 per cent. to 71.3 per cent. The supply of antitoxin (Aronson's) was at first so small that only doses of 1 c.c. were employed, cautiously increased to 5 c.c. Eight cases were thus treated with a fatal result in all but one. From May 1 to Setember 24, 1894, among 64 cases of diphtheria treated by ordinary methods there had been 43 deaths, a mortality of 67.1 per cent. Of 30 cases treated medicinally 13 died, a mortality of 43.3 per cent. Of 32 cases in which intubation was practised death took place in 30. An adequate supply of Aronson's serum was now obtained, and its employment continued from September 24th to October 12th. During this time 10 cases of diphtheria came under observation, and of these 9 were treated with the antitoxin, doses of from 5 to 15 c.c. being employed. Of these latter 7 recovered and 3 died; the one treated in the ordinary manner also died. Of 12 cases that came under observation from October 14th to October 28th 10 (grave) cases were treated with Behring's antitoxin, the other 2 being mild cases. Of the former 5 recovered, 1 died, and 4 were still under treatment, 3 with a favorable prognosis and 1 with a dubious prognosis. Of the 2 mild cases 1 recovered and the other was yet under treatment.

PÉRIGNON (*Journal des Sciences Médicales de Lille*, 1894, No. 45, p. 442) has reported a case of diphtheria in a child two-and-one-half years old in which on the second day an injection of Roux's antitoxin of 20 c.c. was made, and on the third day an injection of 15 c.c. The injections were speedily followed by a striking detachment of the membranes, and the case progressed to recovery.

The Treatment of Diphtheria with Antitoxin derived without the Intermediation of the Animal Organism.—SMIRNOW (*Wratsch*, Nos. 23, 24; *St. Petersburger medicin. Wochenschr.*, 1894, No. 42, Suppl., No. 9, p. 49) undertook to determine the possibility of inducing by oxidation and reduction in the serum of normal and diseased animals changes similar to those peculiar to the serum of immune animals, and finally succeeded with the aid of electrolysis. He found that injections of dogs' serum that had been exposed to electrolytic action for from three to four hours induced elevation of temperature. Injection of cows' serum treated in the same manner acted similarly, though inducing a slighter elevation of temperature. The employment of such serum in the treatment of animals inoculated with diphtheria-bacilli appeared to exert a curative action.

For Erysipelas.—GAGEE (*Medical Record*, No. 1252, p. 566) has successfully employed local applications of a 5 per cent. carbolic dressing in the treatment of erysipelas. Cheese-cloth which has been saturated with a carbolic solution is applied to the affected parts and for some distance beyond, and over this a sheet of rubber tissue or oiled silk, and the whole dressing kept in place by means of a bandage. If the area of infiltration has encroached upon the beard or the head, the hair of the affected region should be shaved. The eyes, even though not affected, are closed and covered with a fluffed pledget of wet gauze. If the ears are involved, a small portion of the dressing should be placed back of each, so that they shall not be pressed against the head by the bandage. The mouth and the nasal cavities are, of course, left free. The dressing is permitted to remain in place for twenty-four hours, when it is removed and replaced by another. The treatment should be continued until all suspicion of redness of the skin has disappeared.

For Amenorrhea.—

R.—Hydrargyri chloridi corrosivi . gr. ¾.
Sodii arseniatis . . . . gr. j.
Ferri sulphatis exsiccatæ . . gr. xxx.
Potassii carbonatis . . . gr. xv.
Extracti nucis vomicæ . . gr. v.
Misce et divide in pilulas xxx.
S.—One pill to be taken before each meal.

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CHARACTER.

IN a general way, it is doubtless true that the great mistake of men, of all men, consists in the failure to estimate the value of character. Everybody is prone to put the good of life in something gained or done, in knowledge in some objective thing, as wealth, power over men, ability to make much of self, etc. But apart from this general injudiciousness of mankind there are certain ages or peoples which thus err especially and grievously. It is an error, for example, markedly common in a young nation or people, when great public works are to be carried through and tremendous energy is to be put forth or utilized. The man who can win battles, who can plan and build a railroad, who can procure needed legislation, organize and manage manufactories, he is the man people want, and they care little or not at all whether he be honest, pure, high-minded, unselfish, or whether he be the reverse of these things.

By and by, however, with a better civilization, there comes the knowledge, gained by bitter experience, that the emotional and moral make-up of a man, his character, as contra-distinguished from his ability to do things, have as much, or more, to do with our trust of him, with his "success" even, as his ability to do things. As more and more men compete for the same office or work to do it is found that the larger type of personality, the man who has character as well as ability, is the better man to endow with trust and power.

It is just in such a condition that we Americans now find ourselves. We have heretofore been content to give over our cities, States, manufactories, banks, and institutions of a thousand kinds to the persons who by hook or crook could get hold of them, or who could do the work required. Now at last we are finding out that upon the quality of a man's personal character, in a word, upon his morality, will depend the success or failure of the thing done, quite as much as or even more than upon executive ability, knowledge, or will-power. It is not the most expert bookkeeper or cashier that is the best one to put in charge of millions of dollars, but it is the most loyal and honest. It is not the best, most successful administrative ability that now makes the best administrator. In every walk of life, from governing the nation, the city, or the push-cart, we are daily admonished that the perfection of a man's work depends upon the honor and honesty of the man's character. The power of the mere doer, the knowledge of the knower, the skill of the executor, are growing less important, and are coming more and more to depend upon how the thing is done, upon honor and conscience in the doer. In the long run nowadays the man, honest but stupid, if we must drive the comparison to its rather absurd extreme, gains upon the brilliant scoundrel. But as almost no American can be called stupid, so it follows that the combination of conscience with ability now constitutes the highest type of man.

These rather trite truths have their apt and striking application to medicine—but with the proviso that we are hardly yet beyond the first stage of the evolutionary process. We have hardly begun to be more than half-conscious of our barbarism of caring nothing for a physician's character, providing he is said to cure disease, or wins "success." The consequence is that we have plenty of medical Tweeds and Tammanies, our thousandfold quackeries, etc., all dependent upon the custom of not considering a man's character, but only considering his ability to get official position, or a big practice, to write a book, to deliver lectures, to attract the public eye, etc.

Now we contend that it is high time that we undertake the real work of genuine medical civilization. Sincerity and honor are as much needed to make a good physician as trickiness and smartness. The smart man, who is also a trickster, however infernally smart he may be, is henceforth to be more and more avoided. Whatever he says or does he is only after self, and medicine is his ladder and tool. The man whose laboratory-experiments are untrustworthy, who is always appearing in the daily papers under some pretext or other, whose language is habitually a nasty mixture of slang, oaths, or vulgarity, whose private life is filled with trickery and politics—such a man, however "sharp" and "able," is no longer fit to be a teacher of young men; patients should not be sent him, and office should not be given him. A man who makes, derives profit from, or indorses secret preparations should be practically disowned by his fellows in all ways by limiting his power. A man who fleeces the public, and thus injures the reputation of the profession, by charging fees farcically outrageous for inconsiderable operations needs to be incontinently squelched. The man "with a pull," who hoggishly gobbles up and uses for selfish purposes dozens of hospital-positions, excluding other quiet, modest men of equal ability, nay, even holding them in menial subserviency—such men should be avoided by trustees and other dispensers of power. The ringsters who unite into a clique for mutual advantage and profit by all the scheming and politically vile means in their power—they also need disgracing. The huckster, the schemer, the politician (usually he is one person), is to day the worst enemy of medicine. He corrupts at the source; he is the big quack in the better disguise.

In many ways we need to begin the task of discrimination and of rewarding men of modesty, honor, gentlemanliness, and conscience, instead of neglecting them and filling positions with the schemers, the self-puffers, the newspaper-doctors, and all the "pushers" who use medicine as a mere tool to further self. This is because the method of learning a diagnosis, or of treating a patient, or of doing anything, is often as important as the thing itself, and is indispensable to correct results. The best therapeutist, the best curer of disease, is not he who only knows best, but he who is most conscientious, sympathetic, and self-forgetful; the best surgeon is not the most expert operator, but he who will not operate when operation is not necessary. The most successful physician is not he who has most patients and makes the most money, but he who most successfully cures disease. The best teacher is not necessarily he who talks the glibbest or who is the most "popular," but he who helps his pupils to learn the best and most accurate knowledge, and who inspires them with the enthusiasm for knowledge and for the relief of human ills.

Are you a trustee or a dispenser of office or of power of any kind? There are hundreds of self-respecting, earnest, capable, honest, quiet men who deserve your consideration, and who will fill the position you have to give far better, more to the honor of the profession, more to the good of humanity, than the "hustler," the famous infamous fellow who fills your mail with splendid testimonials of his attainments and capacity, and who cronies with newspaper-reporters, "works the club-racket," and is as careless of medical ethics as he is careful of self-advancement.

If you are no appointment-giver you at times require a consultant. Do you believe you or your patient will secure better advice from the business-doctor, the consultation-hunter, the man with much fame, savory or unsavory? Or, is it not more likely you will do better by consulting with one who studies deeply, who is most scrutinizing, accurate—in other words, whose acts and life bespeak intelligent conscience as the ruling characteristic, and not egotism, "business," or love of fame. At least you are a member of some medical society. Can you not help to refuse office to the office-seeker and the politician? Can you not detect and estop the ringsters when they try to refuse membership to the worthy, and when they try to "run in" the unworthy. Blackballing the good man, receiving the bad man, are too common as they are too frightful mistakes.

In no way can we mold the future and make the world better for our children, freer from disease, than to encourage the formation of noble medical character by helping to office and by rewarding and consulting with those who are seeking to keep their characters pure and clean. In no way are we more recreant to our trust than by giving attention to the advertiser, by helping a despicable character to power simply because he has enormous effrontery and egotism coupled with more or less of flashy superficial medical knowledge and fame.

THE TOXINS OF MALARIA.

As is well known, the connection between the parasites of malarial fever and the symptoms of the disease has not yet been satisfactorily explained. The probability that toxic substances are formed during the growth of the parasites, which produce many of the symptoms of the paroxysm, was suggested by DOCK in a paper in THE MEDICAL NEWS (June 6, 1891), and in that article certain experiments of ROQUE and LEMOINE were mentioned which gave support to the supposition. These investigators tested the toxicity of the urine in three cases of malarial fever, and came to the following conclusions:

"Malaria produces a large quantity of poisonous products. These are excreted mostly by the urine, and the excretion reaches its maximum immediately after the paroxysm.

"Sulphate of quinin favors and increases this excretion.

"The severity of the paroxysm and certain pernicious forms stand in inverse proportion to the quantity of excreted toxin, and appear in consequence to depend on disturbances in the liver and kidneys."

DR. J. H. KELLOGG (*Modern Medicine*, October, 1894, p. 250) has recently made some independent experiments in the same line, and with results that confirm those alluded to. DR. KELLOGG'S patient had a severe attack of malarial fever, with crescents and endoglobular bodies in the blood. The precise variety of the latter is not mentioned. The method of experimenting was that of BOUCHARD, and was carried out as follows:

Obtaining the urine for twenty-four hours, or calculating the amount for that length of time, the urine is neutralized and filtered. The filtrate is injected into the ear-vein of a rabbit, previously weighed, and its temperature taken. The weight of the patient is also noted. The injection is continued at the rate of about one c.c. per second until the animal dies. The amount of urine required to kill the rabbit, and the symptoms produced, are carefully noted. The number of c.c. of urine required to kill is divided by the weight of the animal in kilograms, in order to show the number of c.c. necessary to kill an animal weighing one kilo. This gives the "urotoxy" of BOUCHARD. The total amount of urine for twenty-four hours, divided by this, gives the number of urotoxies produced in twenty-four hours, or in other words, the number of kilograms of rabbit which might be killed by the poison produced in twenty-four hours. This result divided by the weight of the subject, in kilograms, gives the weight of rabbit that would be killed by one kilo of the patient's body, or the "urotoxic coefficient." The normal coefficient, according to BOUCHARD, and confirmed by KELLOGG, is 0.44. Three specimens of the urine from the malarial case were tested. The first was collected for eight hours just before the beginning of the paroxysm. The temperature ranged from 97.2° to 100.6° F. The amount of urine was 400 c.c., its toxic coefficient 0.76. The second portion was collected for three hours during the paroxysm. The amount was 300 c.c. The temperature was from 103° to 101° F. The coefficient for this was 2.36. The third portion was collected for eight hours just following the paroxysm, the temperature being from 100° to 99°. Its coefficient was 0.78.

In DR. KELLOGG'S words: "It appears that during an attack of malarial fever the urine is always more toxic than in the normal state. The degree of toxicity was practically the same before and after the paroxysm, being 0.76 before and 0.78 after, this being far above normal. During the paroxysm, however, there is a much greater increase in the toxicity, amounting to more than five times the normal.

"The conclusion from these observations seems very clear and positive. A toxic substance is produced in malarial disease, which is eliminated in greater quantity during the febrile than during the non-febrile stage. The nature of the toxins is a matter which must be left to physiologic chemists to determine. The symptoms produced by the urine collected at different periods differed somewhat. The urine passed before the paroxysm produced powerful tetanic spasms, with dilatation of the pupil. That passed during the paroxysm, as well as that passed afterward, produced equally powerful spasms, but with strong contraction of the pupils.

"During the period preceding the paroxysm urea was secreted at the rate of 30 grams for twenty-four hours, during the paroxysm at the rate of 48 grams, and succeeding it at the rate of 13.5 grams for twenty-four hours."

As DR. KELLOGG says: "It is hoped that others with more favorable opportunities for the study of malarial disease will take up this line of inquiry, and that still further light will be thrown upon the question."

EDITORIAL COMMENTS.

Abolish the Words "Nyctalopia" and "Hemeralopia."—For several hundred years the word nyctalopia has been used to designate the symptom of "night-sight," a condition in which the vision is better by night or in semi-darkness than by daylight. During the same time the term hemeralopia has also been used to designate the opposite condition of night-blindness—a symptom particularly of retinitis pigmentosa, in which vision is worse at night or in poor illumination than in daylight or poor illumination. There are but two or three inconsiderable instances out of the hundreds in which modern ophthalmologists and lexicographers have used these terms wherein the definitions have been the reverse of those given. The words have thus acquired a desirable and necessary certainty of meaning that is at present universal.

But there are two classes of critics or criticasters in the world, the one composed of men who wish to air philologic knowledge or who are ludicrous sticklers for an impossible idealism of philologic accuracy, the other class composed of those who simply wish to find fault. Both are finical, fine, and flimsy in their arguments, and they unite to say that the foregoing words as now universally defined and understood are not used in the sense that they were used by the ancient Greek and medieval Latin medical writers, and that the true etymology of the words demands that they should be used with exactly the opposite sense to that now and for several hundred years ascribed to them.

Indeed! And are we now using words for the benefit of the ancient Greeks and Latins, or are we using them for the people of to-day? Did students of philology never hear of words changing their meaning? The word *idiot*, for example (and in the example we expressly abjure and deny any personal application) meant in Greek a private gentleman in contradistinction to a politician or one in public life; it has slightly changed its meaning since that lightful day. In Germany to-day, *selig* means *blessed*, but in English the word *silly* has quite another significance.

Indeed! And what man of sense cares two beans about the etymology of most medical words? The modern word-minter first gets his fact, his idea, and then he thumbs his dusty Liddell and Scott for some dried roots out of which to make a term that shall express his idea. There has been no historic or evolutional growth, no living nexus between the dead language or the dead Grecians and the new word. The lack of such an historic nexus is shown also by the fact that the meanings of the two words *could* have become reversed. Two to one, in fact, the new word philologically merits only the derision of erudite men, and it would have been just as well if the "bow-wow" theory had been followed in making it as the pseudo-scholastic jumble.

A scientific word has value only upon the absolute condition that its meaning shall be exact and unexceptional. A word that may mean one thing or that may mean its exact reverse; that requires a definition to follow it whenever it used; that may mean one thing to οἱ πολλοὶ and the reverse to scholars—such a word must simply be forever buried. Dr. Greenhill and Mr. Tweedy, of England, are responsible for an attempt to reverse the definitions of the two words in question and to make them conform to the usage of the ancients. In so far as the attempt is successful it can only serve to bring a contemptible confusion into all text-books and dictionaries, and to utterly kill the words. For what man of scientific mind will henceforth dare to use such nonsensical terms?

It did not matter a pin which one was called Tweedledum and which Tweedledee, so that each always had the same name. Mr. Tweedy thinks differently, and he has frightened both of them and us also to death in trying to get an answer and to revive lapsed habits. The twins were not very healthy babies at best, but these overactive and injudicious attempts at artificial respiration have certainly killed them forever.

We Must Educate our Teachers!—Our genial contemporary, *The Medical Record*, seems to think that refraction may be turned over to the optician if he is only "modest and genuine." It says: "There is no reason, however, why a modest and genuine refracting-optician should not perform a useful service to society. Many people suffer from hypermetropia, myopia, and astigmatism who cannot afford to go to a specialist. They must, therefore, either rely on their family physician, go to a dispensary, or to the R. O. Now we advise such to go to their family doctor and let him decide whether the optician is sufficient, and we advise the family doctor never to send his patient to the refracting-optician who proclaims his ability and readiness to diagnosticate almost every chronic abnormality of the eye." We are grateful that at least the immodest and non-genuine are excluded, but we cannot help asking as to the validity of the judgment and the appointment of the judge in such matters. Upon our bended knees, we would ask our good Democritus a dozen plain questions, to which we beg twelve categorical, monosyllabic answers:

1. Is it of advantage to medicine and to humanity that the druggist has been legally forbidden to practise medicine?

2. Do you advise your patients to go to druggists and ask them for something for "a pain in the back," or to the instrument-makers if they say they are crippled?

3. Is the eye as valuable a structure as the ankle or the "back"?

4. Do you advise refraction to be carried out without the use of a mydriatic?

5. Do you advise opticians to use mydriatics and other drugs in the eye?

6. Do you think all eye-strain due to errors of refraction alone, the muscle-balance playing no part?

7. Do you consider the optician capable of treating muscular anomalies?

8. Do you think the general physician capable of deciding whether the optician "is sufficient" or not—*i. e.*, can the general physician decide whether the case is solely one of an error of refraction, or whether muscle-troubles, diseases of the fundus, glaucoma, paralyses, etc., may complicate it or not?

9. Do you think that poor patients with eye-troubles will get better advice *gratis* from the optician than from ophthalmic surgeons at hospitals, or in their private offices?

10. Which advice will be the least expensive in the long run?

11. Is it in the line of medical science and progress to advise patients to leave the physician and go to strictly commercial men for medical advice?

12. Is it befitting a respected medical journal and teacher to give such advice as you have here given?

The Foot-ball Disgrace grows, naturally enough and fast enough. During the past weeks our postman has brought us from many correspondents and from all over the land an amazing mass of news of deaths, broken bones, wrenches, concussions, dislocations, gambling, orgies, and drunkenness of the victorious, tears and bellowings of the vanquished, and sluggings, sluggings, sluggings—without end. We could fill a whole issue of The Medical News with the nauseating details, but it would be useless. Further arguments or facts are not needed. "If we win this game it will increase the number of our students several hundred next year"—that's the unanswerable argument of those who cheer on the crazy fury. Decent referees and umpires, however, are refusing to umpire future games, and even the cheap newspapers are thoroughly disgusted and are plainly warning against the inevitable conclusion of the tragic farce. The long-suffering of parents and guardians, and their confidence in their "professors" and "educators" are marvellous phenomena. But the signs are plain now that they are near ending.

As to the revision of the rules lessening the mortality it has been wittily said that, *plus on change, plus c'est la même chose*. Let us hear no more of the cant of revision and reform. As to inter-collegiate games, there is but one change demanded: abolish them absolutely!

The Question of the Need of Negro Physicians Again.—A valued correspondent residing in the South thinks that there is no such need as we have urged for negro physicians in the South, and says that in his own vicinity the negroes receive from himself and his colleagues the same medical attention and kindness as do white people in the same financial conditions. Of this we have no doubt, and are glad to believe, as our correspondent avers, that this is generally the case. That it is *always* so (as he also says) may be doubted, and the doubt springs from no race-prejudice, indeed, has nothing whatever to do with it. The North is, perhaps, fully as guilty of race-prejudice as the South. We cannot allow any further space to this discussion, and in closing we shall allude to the annual report of the Mayor of Chattanooga which brings definite figures concerning the shocking difference in the death-rate between the white and negro population, showing that that of the negro is nearly three times as great as that of the white. The actual figures are 9.55 per cent. for the white race and 26.15 per cent. for the colored.

Another correspondent calls attention to the fact that Shaw University, Raleigh, N. C., has a medical department exclusively for negroes.

Teratologia, a journal originated and edited by Dr. J. W. Ballantyne, of Edinburgh, and the first volume of which has just been completed, appears to be already established upon a permanent basis. It was primarily intended to be a channel of publication for cases of teratologic interest coming under the observation of the editor; but the offers of assistance from pathologists and teratologists, both at home and abroad, made it possible to include within the scope of the new venture all matters relating to antenatal disease and deformity and certain closely associated neonatal morbid states. The last part of the first volume contains an article on maternal erysipelas, with streptococcus-endocarditis in the fetus, in Italian, and it is proposed, as circumstances may demand, to publish other articles in French and German. Dr. Ballantyne certainly deserves support and encouragement in his worthy enterprise and congratulation on the success that he has already attained in his efforts.

Paskola.—In the current number of *The Dietetic and Hygienic Gazette*, Dr. Henry Leffmann gives the results of some laboratory digestion-experiments with this much-advertised article, Paskola. Paskola is very similar in composition to commercial glucose-syrup to which a little hydrochloric and sulphurous acid have been added. The circular issued by the manufacturer claims not only direct nourishing qualities, but also high digestive power. Experiment, however, failed to demonstrate any activity as a digestive agent. Starch was not converted to an appreciable extent, even after many hours' contact, and neither uncoagulated nor coagulated white-of-egg was converted into albumose or peptone. Control-experiments with commercial pancreatic extracts showed that these were very active.

SPECIAL ARTICLE.

REPORT OF THE MEDICAL NEWS.

A CLINICAL REPORT OF FIVE CASES OF DIPHTHERIA TREATED WITH THE ANTITOXIN.

By WILLIAM M. WELCH, M.D.,
PHYSICIAN IN CHARGE OF THE MUNICIPAL HOSPITAL, PHILADELPHIA.

(Continued from page 559.)

Case II.—On November 15th the exudate had disappeared from both the fauces and the nares. The temperature had dropped to normal, and convalescence from diphtheria and scarlatina had begun. On November 19th the child was playful, ate well and was anxious to sit up. An examination showed that the fauces and nares were quite normal in appearance. There was no albumin in the urine, and unless serious sequelæ should occur, recovery seemed assured.

On November 23d the child was still doing well; had no albuminuria; had a good appetite, and was convalescing rapidly.

Case III.—On November 13th the exudate had entirely disappeared from the fauces, but the uvula remained somewhat pale. The temperature and pulse were about normal. On November 15th the fauces were normal, with the exception of being preternaturally red; the end of the uvula, however, remained pale. The patient sat up on this day for the first time. On November 19th the improvement continued; the patient had been sitting up every day since the 15th, and had a good

appetite. The fauces were still red, though normal in other respects. The urine passed on this date showed about 10 per cent. of albumin by bulk.

On November 23d the fauces were normal, with the exception of the redness, which still continued. About 10 per cent of the bulk of the urine was albumin. There were no symptoms of paralysis. The appetite was good and the strength improving.

Case IV.—On November 15th no exudate could be seen in the fauces, but the nares had not quite assumed their normal appearance. The temperature and pulse were normal, and the appetite was good. The urine continued free from albumin. On November 19th the patient sat up a short while for the first time; the improvement continued, although the circulation was feeble and the pallor extreme. The fauces, with the exception of marked redness, seemed healthy, but the nares were still somewhat abnormal. The appetite continued good, and the patient had apparently gained in weight. In this, as well as in the preceding cases, tincture of ferric chlorid was continued three times daily, together with a nutritious diet.

On November 20th the child was somewhat indisposed, and the temperature was found to be 101°. During the two preceding days the patient had been sitting up.

On November 21st a rubelloid rash covering the trunk and extremities appeared. The temperature fell to normal, or nearly so, and the appetite was as usual. There were no catarrhal symptoms.

On November 23d the temperature continued normal, and the rash had entirely disappeared, without leaving the mottled condition of the skin peculiar to measles; hence the diagnosis of that disease must be excluded. There was no albumin in the urine, but there was slight evidence of paralysis.

Erratum.—In the first part of this clinical report, published November 17th, it is stated that Cases I and II were admitted to the hospital October 2d; the date should read November 2d.

On November 23d Dr. Kyle reported that the Klebs-Loeffler bacillus was still present in the throats of the foregoing cases.

Case V.—On November 13th the exudate in the fauces was somewhat thinner, and that in the nares also seemed to be slightly diminished. The temperature ranged between 98.4° and 99.6° F.; the pulse was more feeble but the respirations were unchanged. Nourishment was taken, though somewhat reluctantly, and vomiting occurred once or twice. The heart's action was weak and the extremities were growing cold. Strychnin sulphate was ordered in doses of gr. $\frac{1}{100}$ every four hours, and the whiskey was increased. On November 14th the exudate in the fauces had diminished still further; the pulse ranged from 96 to 104, and was almost imperceptible at the wrist; the respirations ranged from 20 to 30; the temperature ranged from 98° to 98 4°. Albumin was found to be present in the urine (about 2 per cent. by bulk). The extremities were constantly growing colder; vomiting was occurring occasionally. The child took nourishment and medicines more reluctantly; the pallor of the face was increasing, and the patient was rapidly losing strength. Spiritus ammonii aromaticus in f℥ss doses was ordered every half-hour, and strychnin sulphate, gr. $\frac{1}{100}$, hypodermically, every four hours. The exhaustion progressively increased, and death occurred from toxemia at 10 o'clock P.M.

SELECTION.

READING-NOTICES IN MEDICAL JOURNALS.

In these times of intense commercial activity it is not strange that, even the most reputable and high-toned chemists and manufacturers of pharmaceutical preparations should seek every legitimate means of commending their products to the medical profession, who are their chief customers. The time has been, and past, when the leading dailies and monthlies of this country did not hesitate to insert in their papers editorial commendations of articles advertised in their columns. It may probably be said with absolute correctness, that none of these at the present time insert anything of this sort without having appended to it in italics the abbreviation "Adv." It seems to us that it is particularly incumbent upon the editor of a medical journal that he should keep his pages so clear from any suspicion even of anything which would appear to be in the interest of those who advertise in it, that his subscribers may feel the most implicit confidence in his desire to supply them only with that which is distinctly in their interest. It is no doubt a fact that oftentimes preparations advertised by first-class houses are worthy of high commendation, but if once it is found that an advertisement is the means of obtaining directly, or indirectly, editorial notice in any medical journal, the confidence of the patrons of such a journal in its disinterested presentation of scientific facts must surely be more or less weakened. No editor is in a position to speak well of one and not of another. The only safe course, the only possible course, is to adhere to an inflexible rule, to admit no article and to print no editorial which either favors or condemns the wares of any advertiser.

Holding these views as to the proper conduct of a medical journal, we notice with regret that one of our esteemed contemporaries has recently published, not only an article highly commending the product of a house advertising in their pages—with which house or product we have no controversy whatever—but it has also, most strangely, commented favorably in an editorial upon the same article. We have no doubt that this is eminently satisfactory to the advertisers, but cannot believe that it will increase the respect to which the usual conduct of this journal entitles it.

The true value of any journal to an advertiser is not only the extent of its circulation and the character and standing of its subscribers, but equally, if not more so, the estimation in which a journal is held for absolute impartiality and fairness toward all, and its single eye to the interests of its subscribers.—*Medical Record*, Nov. 17, 1894.

Lysidin.—Lysidin is a body said to be identical with ethylene ethenyldiamin, and to which is ascribed extraordinary solvent powers upon uric acid in cases of gout. The remedy has been employed by Grawitz (*Deutsche medicin. Wochenschr.*, 1894, No. 41, p. 786) in doses of from 15 to 75 grains daily in a pint of carbonated water, with encouraging results.

REVIEWS.

Manhattan Eye and Ear Hospital Reports. No. I. New York: 103 Park Avenue. January, 1894.

This is a neatly printed pamphlet of 143 pages, telling the story modestly and profitably of the enormous amount of work done in the four departments of ophthalmology, otology, laryngology and neurology, during the year 1893. In addition to the tables of classified diseases we find collated details of cases illustrative of diseases of which the etiology and treatment form live topics of discussion in medical societies and journals, and the results of the practice pursued in each series of cases opened to the criticism of the profession. Thus the benefit of the abundant material of this hospital is not confined to the members of its staff, but is participated in by every reader of the report. The list of medical officers includes 13 surgeons, 1 physician, 48 assistant surgeons, 2 assistant physicians, 16 clinical assistants, 2 consultants, 2 pathologists, and 3 internes. The total number of diseases of the eye observed was 10,640; of the ear, 2670; of the throat and nose, 3126, and of the nervous system, 423, making a grand total of 16,859.

A Manual of Nursing in Pelvic Surgery. By Lewis S. McMurtry, A.M., M.D., Professor of Gynecology in the Hospital College of Medicine, Louisville, etc. Pp. 92. Louisville: John P. Morton & Co., 1894.

As the writer claims, this is merely an outline and not an exhaustive treatise on gynecologic nursing. The principles advanced are those in general practice; there is nothing new offered. The most valuable portion of the little volume is undoubtedly the chapter upon complications in abdominal surgery; here the nurse may find enumerated the beginning symptoms of peritonitis, intestinal obstruction, hemorrhages, and cystitis, upon an early recognition of which largely depends the patient's chances of recovery. Such a book as this is of service mainly in emphasizing a subject that is frequently more or less overlooked in larger books on abdominal surgery.

Syllabus of the Obstetrical Lectures in the Medical Department of the University of Pennsylvania. By Richard C. Norris, A.M., M.D., Demonstrator of Obstetrics, University of Pennsylvania, etc. Third edition. Philadelphia: W. B. Saunders, 1894.

Dr. Norris' book, which has been especially prepared for the use of the students in the Medical Department of the University, well deserves the cordial reception it has received in the past. It is clear, concise, and comprehensive, and presents the subject-matter in an acceptable and easily accessible form. In the preparation of this third edition the book has undergone a thorough revision, in order that the additions to the lectures made during the past two years might be incorporated in the body of the work. Especially noticeable is the improvement in the subject of puerperal fever, which is now dealt with in a manner worthy of the importance of that grave disorder. As a syllabus the book ranks among the best.

NEWS ITEMS.

A Few Foot-ball "Casualties."—B. Foote, a student at the Fairfield Seminary, near Little Falls, N. Y., became violently insane a week ago because of injuries received in a foot-ball game. He rushed around the dormitory all Sunday night in his foot-ball suit, and was only secured by a ruse at daybreak. He was then taken to the Utica Insane Asylum, where he is now confined.

Daniel McTiernan, fourteen years old, who played at Worcester on Saturday in a school game, was fallen on in a rush, and was so injured that he died during the night.

At Shreve, O., on Saturday afternoon, Walter Blackburn, nineteen years old, received injuries in a foot-ball game which caused his death. While "interfering" with another player Blackburn was thrown heavily to the ground, and five or six other players fell on him. When he was extricated he was paralyzed from the neck down, and a surgical examination disclosed the fact that the spinal column had been fractured.

The Monterey Foot-ball Club, of Harlem, owing to the death of a member, Fred. Opperman, resulting from injuries sustained in a game on election day, has disbanded for the season.

A serious accident occurred in a game between the Louisville Male High School and the Manual Training School last week. One of the players on the former team sustained a fracture of both bones of one of his legs.

Steven Brady, of the high school at Putnam, Conn., was injured in a foot-ball game last week, and is not expected to live. Since Saturday night he has had five hemorrhages.

Harry Rider, the right guard of the Mount Vernon College foot-ball team, was severely injured in a game with the Hiram College eleven at Alliance, O., November 19th, and is in a critical condition. He became delirious. His physician says the kick has caused a clot of blood at the base of his brain.

A correspondent of The Medical News, Dr. John A. Graham, of Lexington, Va., reports from his locality five cases of fracture and one death.

Hall Stockton, of the "Credenda Club," Philadelphia, "was taken from the field unconscious and is not expected to live."

In the first place, we respectfully ask the governing bodies of all colleges what they have to say for a game between youths presumably engaged in the cultivation of the liberal arts, which needs among its preliminaries a supply on the field of litters and surgeons? Such preparations are not only brutal but brutalizing. How any spectator, especially any woman, can witness them without a shudder, so distinctly do they recall the duelling field and the prize-ring, we are unable to understand. But that they are necessary and proper under the circumstances the result showed. There were actually seven casualties among twenty-two men who began the game. This is nearly 33 per cent. of the combatants, a larger proportion than among the Federals at Cold Harbor—the bloodiest battle of modern times—and much larger than at Waterloo or Gravelotte. What has American culture and civilization to say to this mode of training our youth? "Brewer was so badly injured

(broken leg) that he had to be taken off the field crying with mortification." Wrightington fell, and as he lay on the ground, Hinkey, captain of the Yale men, jumped on him with both knees, breaking his collar-bone. Beard was next turned over to the doctors. Hallowell had his nose broken. Murphy was soon badly injured and taken off the field on a stretcher unconscious, with concussion of the brain. Butterworth, who is said to have nearly lost an eye, soon followed. As we have said, there was a great deal of "slugging"—that is, striking with the fist and kicking—which was not perceived and punished by the umpires, though two men were ruled out for it.

The Mitchell District Medical Society will hold its forty-sixth semi-annual meeting at Mitchell, Indiana, December 27 and 28, 1894. The following is the scientific program: The Right Pulmonary Apex, by Theodore Potter, Indianapolis, Ind.; Report of Additional Operations for Extra-uterine Pregnancy, by Rufus B. Hall, Cincinnati, O.; Concretions of the Tonsils and their Influence in Producing Sore-throats, by Lewis C. Cline, Indianapolis, Ind.; The Tonsil as a Site of Infection, by John A. Thompson, Cincinnati, O.; Mistaken Notions about Glasses, by F. C. Heath, Indianapolis, Ind.; Hysterical Joint Affections, by P. S. Conner, Cincinnati, O.; Squint, by Dudley S. Reynolds, Louisville, Ky.; A Review of Ureteral Surgery, by R. Harvey Reed, Columbus, O.; The Ideal Operation for Varicocele, by G. Frank Lydston, Chicago, Ill.; Public and Private Hospital Work, by A. M. Owen, Evansville, Ind.; The Cause and Prevention of Pelvic Inflammation in Women, by L. S. McMurtry, Louisville, Ky.; Some Suggestions in Rectal Practice, by Joseph M. Mathews, Louisville, Ky.; Cancer of the Rectum, by Arch. Dixon, Henderson, Ky.; The Medical Fad of the Nineteenth Century, by Samuel H. Collins, Lawrenceburg, Ind.; A Case of Obscure Fracture Complicating Dislocation of the Elbow-joint—Arthrotomy, by Hugo O. Pantzer, Indianapolis, Ind.; Some Cases of Abdominal Section followed by Slow Heart, by T. A. Reamy, Cincinnati, O.; Paper, by J. C. Culberston, Cincinnati, O.; Paper, by J. W. Marsee, Indianapolis, Ind.; Paper, by I. N. Love, St. Louis, Mo.

The Samuel D. Gross Prize of the Philadelphia Academy of Surgery.—The quinquennial prize of one thousand dollars under the will of the late Samuel D. Gross, M.D., will be awarded January 1, 1895.

The conditions annexed by the testator are that the prize "Shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo in length, illustrative of some subject in surgical pathology or surgical practice, founded upon original investigations, the candidates for the prize to be American citizens."

It is expressly stipulated that the successful competitor who receives the prize shall publish his essay in book-form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery.

The essays, which must be written by a single author in the English language, should be sent to Dr. J. Ewing Mears, 1429 Walnut Street, Philadelphia, before January 1, 1895.

Each essay must be distingished by a motto, and accompanied by a sealed envelop bearing the same motto, and containing the name and address of the writer. No envelop will be opened except that which accompanies the successful essay.

The committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year.

The committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

Another "Gold-Cure" Victim.—An inquest, resulting in a verdict of "death from alcoholism," was held in Chicago on the 12th ultimo. The victim—a commercial traveler named Dresser—was discharged "cured" from a Keeley institute about three years since, and for a time was one of the "star" cures. This makes the sixth or seventh "post" held in that city within a few months on "graduates of the gold cure." It might be worth while to gather up the statistics of this kind for the country at large.—*Journal American Medical Association.*

BOOKS AND PAMPHLETS RECEIVED.

Précis de Clinique Thérapeutique. Par le Dr. A. F. Plicque. Paris: G. Steinheil, Éditeur, 1894.

The Annual Report of the Department for the Insane of the Pennsylvania Hospital, for the year ending Fourth Month 25th, 1894. By John B. Chapin, M.D., Physician-in-Chief and Superintendent. Philadelphia, 1894.

Remarks on Hog-Cholera and Swine-Plague. By William H. Welch, M.D., and A. W. Clement, V.S. Pamphlet, 1894.

Transactions of the Association of American Physicians. Ninth Session, held at Washington, D. C., May 29, 30, 31, and June 1, 1894. Vol. ix. Philadelphia: Printed for the Association, 1894.

Prospectus of the St. Louis College of Pharmacy. Twenty-ninth Annual Session, from October 8, 1894, to April 8, 1895. St. Louis: College of Pharmacy, 1894.

Sixteenth Annual Announcement of the St. Louis College of Physicians and Surgeons, Session 1894-95.

First Special Report of the Factory Inspectors of Illinois on Smallpox in the Tenement Sweat-Shops of Chicago, July 1, 1894. Springfield, Ill.: H. W. Rokker, State Printer and Binder, 1894.

Announcement of the Gross Medical College, Denver, Colo. Annual Session, 1894-95. Reprinted from the Gross Medical College Bulletin, 1894.

Chromicized Catgut as a Means of Direct Fixation in the Treatment of Fractures and Osteotomies, with a Report of a Case. By F. W. Jay, M.D. Reprinted from the Journal of the American Medical Association, 1894. Eleventh Annual Announcement of the Medical and Dental Departments of the National University, 1894-95. Washington, D. C.

H. Bocquillon-Limousin. Formulaire des Médicaments Nouveaux et des Médications Nouvelles pour 1894. Paris: J. B. Baillière et Fils.

Reports of the Trustees and Superintendent of the Butler Hospital for the Insane. Presented to the Corporation at its Fiftieth Annual Meeting, January 24, 1894.

A Case of Male Hysteria Characterized by Recurrent Attacks of Motor Aphasia and Lethargy; Apparent Cure by Hypnotism and Suggestion. By Theodore Diller, M.D. Reprinted from the International Medical Magazine, 1894.

The Non-Operative Treatment of Brain Tumors. By Theodore Diller, M.D. Reprinted from the University Medical Magazine, 1894.

Sperminum-Poehl in chemischer, physiologischer und therapeutischer Beziehung. Von Dr. Bubis. Separatabdruck aus d. St. Petersburger Medicin. Wochenschrift, 1894.

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ORIGINAL ARTICLES.

AN EPIDEMIC OF PARALYSIS IN CHILDREN, WITH A REPORT OF ONE HUNDRED AND TWENTY CASES.[1]

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DURING the past two months, through the intervention of Dr. C. S. Caverly, President of the Board of Health, and his colleague, Dr. H. H. Swift, I have been able to make some observations upon an epidemic of "Paralysis in Children" that occurred in the State of Vermont. The epidemic commenced late in June, increased in July, and culminated in August, and, though new cases are cropping up, the malady has now almost abated. I obtained the notes of ninety-one cases out of one hundred and twenty that were affected.

I feel at liberty to call the attention of this Association—a body that concerns itself chiefly with the health of the people—to this malady, wholly unknown in origin, and of uncertain nature. The record is fragmentary and imperfect. But it is by reason of its imperfection that it will mainly interest this meeting. Our aim is not so much to investigate the nature of disease as to examine into the conditions under which it prevails and the means that can be taken to prevent, limit, or even eradicate it. An additional reason is that, after as thorough a search of the literature as I could make, this is the first epidemic of the kind that has occurred in America.

I have not, without thought, decided to speak of these cases as "Paralysis in Children." They might be classed as cases of "poliomyelitis anterior acuta," if this would add in any degree to our knowledge, but such a term demands a consent that, with the imperfection of the material, many will be unwilling to make. Even in undoubted cases the use of such a term is open to objection, as it is merely a pathologic remark that does not entirely meet the case. In the cord of a child dead of this disease the lesion is not confined to the cells of the anterior horn; there may be a general hemorrhagic myelitis and there may be even meningeal involvement. But if we accept the definition of Osler, that this formidable name merely signifies "an affection occurring most commonly within the first three years of life, characterized by loss of power in certain muscles, and rapid atrophy," then we may, for the moment, leave names at one side and refer to some cases. As we all know, the nomenclature of disease requires revision to bring it at all into harmony with the amount of definite information, however small, that we really do possess.

At first, the belief was held that the outbreak was one of cerebro-spinal meningitis, and there were several cases presenting the characteristics of this disease. Besides, it is well known that this is an infectious disease that occurs not uncommonly in epidemic form. But from the cases that I shall submit, it must, I think, be clear that the malady is not to be explained by this method of reasoning. It will be noted in most of the cases that there were no typical symptoms of this disease; in some there were no symptoms at all, beyond paralysis. There was a general absence of marked retraction of the head and of opisthotonos; the sensory symptoms were not prominent; the headache was chiefly frontal; and, beyond some slight delirium of the ordinary febrile type, there were no psychic manifestations. The cutaneous symptoms were unimportant. While, in many cases, there were indefinite rashes, in only one were there petechiæ; in none, herpes labialis, mottling or purple spots, or the other undoubted cutaneous manifestations of "spotted fever."

Again, the sequelæ and complications were different. There is no account of pleurisy or pericarditis, and in only one case pneumonia. In only two cases was arthritis a factor, and in no case was there any persistent paralysis of any of the cranial nerves.

There was no impairment of hearing. The eye-symptoms were wholly of central origin. There was no ophthalmia, no conjunctivitis, no keratitis, or any other ocular inflammation; nor did any impairment of vision follow the attack. In these respects the malady departs from the type of cerebro-spinal meningitis, in which disease the eye-symptoms are marked and usually constant. Of thirty-two cases examined by Dr. Randolph these symptoms were present in twenty-eight, and on the authority of Wilson, Niemeyer, Knapp, and Kreitmair, it may be accepted that ocular symptoms predominate in all epidemics of cerebro-spinal

[1] Read before the American Public Health Association, September 28, 1894.

meningitis. Indeed, Hirsch affirms that "conjunctivitis is almost a constant condition."

The earliest case of which I could procure any record occurred on the 17th day of June, 1894, and I have taken the following note.

S. C., a boy five years old, complained on the 17th of June of headache, chiefly frontal, with nausea and vomiting; his temperature was 102°, the pulse 115. This condition continued for twenty-two hours, and was succeeded by soreness in the arms and legs, loss of reflexes, with gradually increasing paralysis, culminating after twenty-four hours in a completely powerless condition of both upper and lower extremities.

I will place by the side of this a later case:

A. B., a delicate girl of twelve years, with a slight left lateral spinal curvature, fell sick of an attack resembling indigestion, with coated tongue and marked constipation. Gradually, without any alarming symptoms, paralysis supervened, and in two days all the four limbs were rendered useless. After five weeks there was no sign of improvement in either arms or legs.

In general features the following cases are much alike:

Mildred T., a strong child of two years of age, on the 28th of August had an accession of fever, with a temperature of 103° and a pulse of 115, a coated tongue, constipation, and headache. These conditions persisted for four days, when it was observed that the right leg was completely paralyzed. It still remains in that condition.

Walter F., a well-grown lad, aged eight, was seen on the 21st of July, with a pulse of 140, a temperature of 105°, with nausea, vomiting, and diarrhea, and in a condition of extreme nervous tension, bordering upon delirium. Under acetanilid the temperature was reduced to 102°, but during the night two convulsions occurred, the temperature rose again to 105, and there was marked and noisy delirium. In the morning the condition was improved, and in four days the temperature was normal. There was now pain in the left arm, and with this exception, convalescence was well established, but the arm was completely paralyzed and hyperesthetic. Atrophy proceeded rapidly, and the limb became flaccid, soft, and flabby. The reaction of degeneration was soon manifest; then the nerves entirely lost their irritability and did not react at all to the interrupted current. The paralysis remained stationary for two weeks, and now shows some small improvement.

C. D., seven years old, was affected on the 18th of July, and for two weeks was in a general febrile condition, with delirium; there was general hyperesthesia and occasional convulsions. Gradually a paralytic condition of the upper and lower extremities supervened, which in a few days was confined to the left arm, and is now passing away after persisting for a month. For two weeks the patient was affected also with loss of speech.

In the following cases there were pronounced joint-symptoms:

The patient was a boy, seven years of age, who from the 4th of July had a temperature of 103.5° and a pulse of 120, lasting three weeks. The temperature now dropped to 97° and the pulse to 50. All this time there was obstinate constipation and general hyperesthesia. The knee-joints were painfully swollen, as well as the elbow-joints and shoulder-joints. Paralysis of the left upper and left lower extremities followed, and still persists.

Arthur A., aged four years, had been ailing for two weeks, and on the 22d of July was seriously ill. After three days there was fever and pronounced delirium; the head was thrown well back, and the muscles of the neck and back were painful and rigid. At the end of a week the temperature was normal, but both legs were drawn up, and the left knee was swollen and tender. For six days this condition persisted, but was gradually relieved. Paralysis with entire loss of usefulness followed, but after a month the limbs, though atrophied, appeared to be regaining their function.

Gowers holds that the pain is only "supposed to be in the joints, because it is produced by moving them, when it is really in the nerves, which are mechanically disturbed by the movement of the joints." In these cases the lesions appeared identical with those of acute rheumatism.

In the following cases the onset was peculiar:

Alice B., aged eleven years, a sturdy girl, on the 18th of July was affected, as a preliminary symptom, with double vision. For the following three days she was slightly unwell, and the next morning was unable to get out of bed. The left leg was completely paralyzed, the left arm slightly so. Fever with delirium followed for four days, when the symptoms abated, and finally all the conditions were relieved, and now the limbs show some improvement. It is to be noted that in the case of this girl the menstrual function was established during the progress of the disease. It is well known that the uterine function has a direct influence upon the cord, and *vice versa*.

Annie H., eleven years old, on the 15th of August was observed to have a coated tongue and symptoms of "biliousness," without fever or any other special symptoms. This continued as a slight indisposition for three days, when the child began to stumble, and on the 18th there was a complete paralysis of the left leg. This remained for ten days, when signs of improvement were noticed, which still continue.

In certain cases, as the following, there was no premonition of the attack:

An infant girl, suddenly and without symptoms, developed paralysis of both lower extremities. The condition persisted for two weeks, and went from improvement to complete recovery.

In view of the fact that in many cases of cerebro-spinal meningitis the lance-shaped coccus, similar

in all respects to the pneumococcus, has been found, and which Cornil and Babes regard as the cause of both diseases, it is worth remarking that pneumonia was present in only one case :

E. F., a boy aged four years, was affected on the 6th of August, after a slight preliminary illness, with paralysis of both legs, and two days later developed pneumonia. Both conditions subsided, and now the child is in a fair way of recovery.

In a few cases the onset was accompanied by symptoms of transient spinal meningitis. Gowers believes that each condition must be regarded as a coincident effect of a common cause.

In the following cases the symptoms of spinal meningitis were well marked :

Cortice C., aged twelve years, on the 8th of August had an attack resembling acute indigestion, and two days later both lower extremities became partially paralyzed. The child was away from home, and was now removed a distance of eighteen miles. The same night the temperature rose to 104.5°, the pulse to 130, and two convulsions occurred. There was undoubted retraction of the head and painful stiffness of the neck. The child was irritable and restless, with photophobia and undue sensitiveness to noises. The pupils were unequal, and there were well pronounced motor symptoms. There was tremor of the muscles, with clonic spasms of the legs and arms. The next morning the child was paralyzed in both legs. This acute stage passed off by the 15th of August, when the tongue was clean, the temperature normal, and the child was eating well, though there was some inabiiity to swallow, due to paralysis of the throat-muscles The paralysis, however, persisted, and on the 17th the child suddenly collapsed, with sordes on the teeth, the pulse imperceptible, the extremities cold, and with all the signs of impending death. Under heat and stimulants the child recovered in three days. Throughout the whole course there was an erythematous eruption which would vanish and then reappear. By the 28th of August one leg had improved, but the other remained much atrophied, and the signs of returning usefulness are indefinite.

In the following cases the issue was fatal :

Hilding A., a Swedish child, twenty months old, on the 31st of August was stricken with fever of 103° and a pulse of 120. The restlessness was extreme, the child moaning and tossing its limbs, but quite conscious. The head was firmly fixed, slightly retracted, and the pupils contracted. The next day the general symptoms were improved, but the child continued restless and in a highly excitable condition. On the 2d of September the fever had disappeared, and the restlessness increased, with clonic spasm, strong grinding of the teeth, and paralysis of the left leg. The next day the temperature rose to 104°, the spasm increased, and general paralysis supervened. The child died in the afternoon.

S. O., an Italian boy, four years old, on the 21st of July became sleepy and complained of headache. He was found to have no fever, but with a pulse of 45, slow, hobbling in character, and intermitting every fifth beat. This continued for four days, when a slight improvement was noticed. Strabismus occurred, but the child made a complete recovery, so far as symptoms were concerned, on the seventh day. He was then allowed to play in the hot sun with a goat, when all of the original symptoms returned—the headache, squint, halting pulse, and drowsiness. This was the last of August ; by the 1st of September he was worse than at any previous time, but yet had no fever. The next day the knee-jerk was absent, but the plantar and the cremasteric reflexes were retained. The legs now became paralyzed, and by the 3d of September the paralysis was general, the eyes half closed, the pupils dilated and unequal, and a temperature of 105°. The child died at three o'clock the same afternoon.

Fannie H., aged six, had been ailing for a week, and on the 25th of July was noticed to be very ill, with a temperature of 104°, a pulse of 120, with pain in the head, back, and legs. The next day all these symptoms were increased in severity. Petechial spots appeared on the legs, and on the third day the paralysis of these limbs was complete. The next day the delirium was excessive, noisy, and continuous. The head was retracted, the pupils unequal, and the child was unable to swallow. The conditions grew worse, the paralysis became general, and the child died July 31st.

An infant boy who had been ailing for five days, with no special symptoms, on the 24th of July had a series of rapid convulsions, and in three hours died.

I was also able to see fifteen cases of children with slight digestive disturbance, but in all there were clearly marked nervous symptoms, but with no sequelæ. In others there was paralysis.

A. B., a Swedish child, four months old, was suddenly affected with indigestion and diarrhea, accompanied by a fever that continued for five days. The nervous tension was marked, and the child was fretful and restless. Suddenly paralysis developed in the right leg and continued for ten days, when complete recovery took place.

A. B., a boy, two years old, had an attack of acute indigestion, with marked nervous tension and general spasms. Under treatment with purgatives and sedatives the symptoms subsided ; in four days the child was well.

I will now set forth the cases of six adults, the ages being respectively nineteen, twenty-four, twenty-seven, thirty-five, thirty-six, and seventy years ; of these three died. In two the paralysis persists, and the man of seventy made a complete recovery.

G. E., thirty-six years of age, had for three weeks complained of lassitude, headache, loss of appetite, and nausea. On July 6th the headache was very pronounced and the prostration general ; there was a coated tongue, but no fever and no acceleration of pulse. On July 11th the pulse was normal as to

rate and quality, but there was a temperature of 101°; the patient kept about his ordinary employment, that of an undertaker, until July 15th, when he was confined to bed. Pain in the back was the predominant symptom, but it subsided under dry-cupping and suppositories of morphin. On July 10th the pain was relieved, but during the day paralysis of the lower extremities supervened, with an erythematous eruption. In the afternoon the fever rose to 103°, and the pulse to 85. Next day at 4 o'clock in the morning the lungs filled up, the temperature became normal, the pulse 130, and eleven hours later, with progressive heart-failure, the patient died.

B. J., a male, nineteen years old, complained of pain in the head and back, with a pulse of 100 and a temperature of 102°. The fever subsided on the fourth day, the pulse fell to 56, and all pain had disappeared. The right arm became paralyzed, and by the next morning the pulse was 38, the temperature 97°, and the extremities cold. Complete paralysis developed during the day, and in the afternoon the lad died.

A. E., aged thirty-five years, on July 28th developed the characteristic symptoms of cerebro-spinal meningitis, with headache, chill, nausea, vomiting, a temperature of 102°, and a full, strong pulse. The muscles of the neck became painfully stiff, with retraction of the head, and flexing of the trunk backward, with rigidity of the muscles. This condition remained for a week, when a convulsive storm passed over the patient, and in two hours she was dead.

A. H., an adult male, aged twenty-four years, was affected on the 12th of July, the temperature being 100°, the pulse 65. In forty hours these symptoms subsided; then there was retention of urine for thirty-six hours, followed by complete paralysis of both legs, which still continues.

A. F., aged seventy, on the 4th of August was affected with severe pain in the lumbar region, high fever, nausea, and vomiting. This condition prevailed for thirty hours, then the temperature fell to normal, and the pulse to 58, accompanied by partial paralysis in the legs, which passed off in a week.

E. G., a female, twenty-seven years old, on July 8th complained of intense frontal headache, with painful neck and back. The temperature was 100°, the pulse 58, and without further symptoms the arms became paralyzed, but gradually recovered.

On the 10th of July a son of this woman was affected with pains in the head and back, a temperature of 104°, and a pulse of 130. After twenty-four hours the legs became paralyzed as well as the left arm, but they were restored to their normal condition in three days.

Notes upon a group of five cases follow:

1. A French boy, on June 26th was seized with slight fever, delirium, and constipation lasting for three days; then paralysis of the left arm and left leg ensued, lasting twenty days, followed by recovery.

2. An Irish girl, on June 26th had general symptoms as in the preceding case, with paralysis of the left lower extremity, which still continues.

3. An American girl, had on July 4th a fever of 105°, lasting for ten days, followed by paralysis of the lower extremities lasting two weeks, and ending in recovery.

4. An American girl, on July 5th had the initial symptom of double vision and loss of accommodation, with nausea and vomiting, but no fever. Paralysis of the left arm and left leg still persists.

5. A French boy, had fever for six days, and paralysis of the lower extremities, which still persists.

I now present notes upon three cases:

1. The patient was five years of age, and had fever, nausea, vomiting, but no eruption and no affection of the special senses; paralysis of the upper part of the right thigh still persists.

2. A child of one year, had on July 28th the first symptom, hyperesthesia, lasting for forty-eight hours; then nausea, vomiting, fever, paralysis of the right leg and right arm, which still persists, though somewhat improved.

3. On August 4th a child one year of age had the same general symptoms, with paralysis of the right arm, which remains permanent.

I add notes upon four more cases:

1. On August 1st a child was seized with fever, nausea, and vomiting, lasting for three days, when the temperature became normal and the pulse 60. Paralysis of the right leg and right arm ensued, persisting for two weeks, and then clearing up.

2. On August 3d an adult male, aged thirty-six, had pain in the back, a pulse of 110, a temperature of 102°, with paralysis of the left arm; recovery was complete in two weeks.

3. On July 13th a brother and sister had fever, pain in the head and back, lasting three days, with paralysis of the right arm lasting ten days, followed by recovery.

In four cases, all of which occurred in July, the ages being one, six, thirteen, and fourteen, the paralysis was in the lower extremities; retention of urine occurred in two cases, and paralysis still persists.

In two cases occurring on June 20th and July 3d the children were one year and nine months and two years and seven months old respectively. The general symptoms were fever, nausea, vomiting, diarrhea for four days, with slight skin-symptoms. In one case the right arm was rendered wholly useless, and the left arm and left leg partially so; in the other case the paralysis affected both legs. In the latter case the condition persisted for five weeks, but in the former it is permanent in the right arm and shoulder and in the left shoulder and upper left arm.

In nine cases that occurred between July 15th and August 15th the ages of the children were be-

tween one and five years. In all there were eruptions on the skin and a temperature ranging from 101° to 104°, and lasting from two to five days. In only two cases was the eruption extensive, and in no case was there desquamation. The paralysis was confined to the lower extremities, and involved chiefly the extensors and abductors, but was never complete; hyperesthesia was present invariably. In six cases recovery took place, and in the other three improvement was noticed.

In ten cases occurring between July 5th and July 18th the ages ranged from eighteen months to four years; there was fever, but no convulsions and no affections of the special senses. The lower extremities in all cases were affected, and in three the condition is permanent, while some made a recovery more or less complete. In one case there was retention of urine.

In seven cases occurring during the month of June the ages ranged from a few months to nine years. The fever was slight, the temperature averaging 100°. In three cases there was a papular eruption, spasm of the facial muscles, and in all these were pains in the legs. The general eruptions persisted for a week, and were followed by paralysis of the lower extremities. None of the cases was fatal, and in all there are signs of improvement.

In eight cases occurring between the middle of July and the middle of August the ages varied between ten and thirty-five years. In two the paralysis was general, and the result was fatal. In two there were erythematous eruptions, in one convulsions, and all had fever.

I have given notes of ninety-one cases. By the most careful estimate I could make there had been in all one hundred and twenty persons affected.

The following table shows the results reduced to percentages:

Fatal cases	13
Recovered	25
Improved	30
Unimproved	32

The muscles in every marked case showed that the degenerative reaction to the constant current was increased. The muscles were variously affected. In some cases the whole arm was paralyzed, in some only the intrinsic muscles of the palm. But the combinations of the different groups affected were endless. After an exhaustive tabulation of groups I was unable to discover any combination that might be looked upon as the natural order of the paralysis. The deltoid was usually affected, but with it, or alone, were the supra-spinatus, infra-spinatus, triceps and biceps, the supinators and pronators, in endless combinations. In one case all the muscles of respiration were paralyzed and the breathing was abdominal. In the legs the extensor group was most frequently affected, and sometimes there was functional association. When the paralysis was partial the muscles below the knee suffered most, and when the condition of foot-drop was pronounced the muscles of the thigh would be found in good condition. The paralysis in every case was motor, and the only disturbance of sensation was hyperesthesia.

The distribution of the paralysis was as follows:

Left arm alone	2
Right arm alone	4
Both arms alone	2
Right leg alone	7
Left leg alone	20
Both legs alone	45
Left leg and left arm	8
Right leg and right arm	3
Both legs and left arm	2
Both legs and both arms	4
Right thigh alone	2

It would be hard to discover a region in which a disorder had less license to become epidemic. The whole district in which these cases occurred lies upon a series of terraces, and increased safety did not come with elevation. Indeed, four cases occurred on the very ridge of the Green Mountains at an elevation of 1500 feet. The line of dwellings in which these patients lived extended over half a mile, and the water-supply was different in each of the four cases, namely, from springs out of the mountains.

The infection during my inquiry was confined to a definite area of fifteen miles in length and twelve in breadth. The eastern limit was the range of the Green Mountains, but on the other three sides there was no natural boundary. The city of Rutland is in the center of the area.

I am convinced that the geologic formation of a district has much to do with the dissemination of disease. Country districts only remain healthy when the territory is enormously large for the number of habitations. When we approach the conditions of village-life we have as a rule the condition most suitable for the propagation of disease. The natural drainage of the soil is of the highest quality but of the most limited capacity, and when once there is an infected focus the very excellence of the drainage increases the danger. It is in the country, for example, that we have the most virulent types of diphtheria, scarlet fever, and typhoid. In the present case, though, I am unable to mark out any definite line upon which the epidemic has marched, I made a careful examination of the geologic conditions, which I wish to record for future reference should similar outbreaks occur in other localities. The region has great geologic interest on account of the faults and dislocations in the earth's crust and the profound breaks in the strata of the whole

district. The great St. Lawrence and Champlain fault, or the Great Appalachian, as it is sometimes called, culminates in this district. It extends all the way from Gaspe to Quebec City, and crosses the boundary at High Gate Springs, proceeding through Vermont to Alabama, where it appears to die out. This great fault, accompanied by numberless smaller ones, must form gaps and reservoirs into which contaminated waters can fall and become breeding-places and again burst forth in the most unexpected spots. It is not the surface-water alone that carries infection, as we know that spores are independent of sunlight and warmth. The whole region is full of springs, as most faulty districts are, and the gaps that yield water may just as likely receive it after it has drained through the surface-soil. Again, the ridge of the Green Mountains marks the eastern boundary of the infected area, and the further slope remains entirely free from disease and free from geologic faults. Again, this region has undergone in the past great metamorphoses, and as the physical agencies are still at work the chemic and physical reactions must affect the soil and water. Further than this one cannot go.

The data from which my conclusions as to the influence of climate are drawn are obtained from Mr. William Line, the observer at Northfield Station of the Bureau of Vermont, and from Mr. Mark Harrington, Chief of the Weather Bureau at Washington. The total rainfall for the months of June, July, and August amounted to only 6.58 inches, the amount for the same period of the preceding years being 11.95, 15.04, and 10.02 inches, or an average of 11.2 for the last forty-seven years.

The average temperature for the same period in 1894 was, 64.3°; 1893, 64.4°; 1892, 65.2°; 1891, 62.9°, or an average of 65.4° for the last forty-seven years, and the relative humidity was for 1894, 79.9; for 1893, 78.6; for 1891, 80.

The summer was dry and hot, the springs were scanty, and the surface water low. The observations in detail are:

Month.	Average temperature.	Relative humidity.	Rainfall.
June, 1891	61.4°	79	2.04
July, "	63.0	78	3.20
August, "	64.0	83	4.78
June, 1892	64.9	75	5.66
July, "	66 0	75	2 88
August, "	64.8	86	6.50
June, 1893	65.0	75	2 07
July, "	63.8	77	3.74
August, "	64.6	83	6.14
June, 1894	64.5	80.1	1.71
July, "	67.2	77.4	1.64
August, "	61.2	82.4	3.23

Neither overcrowding of habitation nor any of the evils usually accompanying or flowing from this condition were factors in the present case, as only in four families was more than one member affected. It was quite usual for children to sleep with those who were affected and themselves remain entirely free from the disease. No isolation was practised, nor would such precautions appear to be of the slightest value. Any statistics of the nationality of those affected would be useless, as the occurrence of cases was entirely independent of place of birth, and the population is intimately mixed. In one locality there are nearly a thousand men employed in marble quarries, many of them Italians, but in this large colony I found only two cases. Indeed, the brunt of the disease appears to have fallen on the purely rural portion of the community. Amongst the cases were found American, Swedish, Italian, French, Irish, and Jewish children.

Nor was anything discoverable in the domestic and personal hygiene of those attacked. The houses are all detached, and in many cases there was nothing in the nature of privy or cesspool found; neither had penury any part in the epidemic. The district is one of the most thriving in the United States, and has been settled for a century and a half. The food-supply and the milk-supply are above reproach, being drawn from the neighboring farms or from the farms on which the patients lived. The veterinary surgeons have remarked nothing unusual in the condition of the cattle; but twelve horses died of a malady about which the veterinary surgeon to whom I applied was unable to give any information. It was called cerebro-spinal meningitis. It is easy to reproach one with lack of zeal and scientific enthusiasm on account of scarcity of pathologic data, but in every case of death up to the present autopsies were refused, even though the most urgent efforts were made. The friends of the patients refused to have their objections overcome by persuasion, by appeals to their reason, or by love of gain, even by pressure and intimidation. But a malady extensive and fatal in its nature should not go unstudied, nor should its lessons be buried with the dead. One private person cannot accomplish much because of want of authority and want of facilities. Besides, no one person combines sufficient clinical skill and experience with bacteriologic knowledge and pathologic technique to deal adequately wilh a matter of soserious a nature. Instruments get out of adjustment, batteries fail, and sterile refinements are hard to preserve in a country district.

But the greatest difficulty of all is lack of authority. In the Province of Quebec, though we are an anomaly to the rest of the continent, we do much better. Before the recent session of the Legislature commenced the Board of Health took counsel as to what changes in law were necessary, but they found that the authority as existing was absolute. The

board may examine under oath and compel witnesses to appear in the manner required by the Code of Civil Procedure, and perform autopsies when desired. In the State of Vermont there is an efficient Board of Health constituted under the act of 1886, but it had little more than advisory powers till 1892. Since then the board has power to promulgate more stringent rules and the authority to enforce them. The defect consists in this: there is no adequately equipped laboratory and no organized system of investigating such an epidemic as that in question. There is no authority that can supply the demand for autopsies, and without the information to be gained in this way, one is working largely in the dark.

In every State and Province there should be a complete equipment in staff and appliances for the investigation of disease, and one of the main purposes of this paper is to emphasize the necessity of such an institution, as well as to call attention to an epidemic so unusual in its occurrence, that, as I have said, it has not been noted before in this country.

I have confined myself to a statement of facts, and have purposely refrained from giving expression to any theories; that can be done more adequately in another place when the work in hand is at an end and the positive or negative value of the pathologic and bacteriologic results is obtained.

THE ATTENUATED BACILLUS TUBERCULOSIS: ITS USE IN PRODUCING IMMUNITY TO TUBERCULOSIS IN GUINEA-PIGS.

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APPARENT IMMUNITY TO TUBERCULOSIS IN GUINEA-PIGS.

IT is well known that a number of the pathogenic bacteria decrease very greatly in virulence when cultivated for a long time outside of the animal body. This fact has also been noticed in the case of the bacillus tuberculosis, and the literature is full of references to the decrease in virulence of the tubercle bacillus and the way of securing this, but some facts have been developed in this connection in my work on tuberculin, in a new direction, which should be recorded.

Cultures with which I started several years ago were obtained through the kindness of Dr. Trudeau, of Saranac Lake, N. Y., and were the second generation on blood serum from a rabbit. After growing for several generations upon glycerin-agar, about two months to each generation, the culture was transferred to glycerin beef-broth, which was to be used as a source for tuberculin. After the fourteenth generation I noticed that the guinea-pigs that were always kept inoculated with tuberculosis, to test the tuberculin, did not succumb nearly as readily, and in the case of the fourteenth generation it required six months before the disease developed. I, consequently, inoculated a number of guinea-pigs with the seventeenth, eighteenth, nineteenth, and twentieth generations of this germ, which was alive and would grow very readily on the liquid media. Some of these pigs inoculated had previously been treated by an injection of tuberculin; the others had never been used. After some months those that had been inoculated with the attenuated germ remained quite well, and one was chloroformed, and the autopsy showed that it was free from disease.

In order to see if this might be accidental I then had nine pigs inoculated, four checks, four pigs previously inoculated with the attenuated germ, and one pig that had received tuberculin by feeding. These were all inoculated in the side with the material from the gland of a tuberculous cow that had just been killed. After seven weeks the checks were all found dead from tuberculosis. The other animals appeared perfectly well. One was accordingly chloroformed, and although very careful examinations were made no disease could be detected. Even the local lesion that was produced where the material had been injected had entirely healed. The animals were apparently immune.

Some experiments that had been made earlier with tuberculin prepared from a younger growth did not show that this material had a positive value in preventing disease, although it retarded it. As the preparation of tuberculin, however, continued, I noticed that the tuberculin was much more constant in reaction and that a larger amount of the active principle was yielded by cultures of the older germ.

At this time I had at the Experiment-station of the Bureau the calf of a tuberculous cow, which, however, although the mother was badly diseased, did not respond to an injection with the tuberculin. The calf was then drenched with 100 c.c. of a growing active liquid culture of this attenuated germ, the twentieth generation. After three months the calf was again injected with tuberculin, and, failing to respond, was killed. The autopsy showed the animal to be perfectly healthy.

Another healthy Southern cow received into a vein an injection of the same generation from this liquid culture, in July. On November 20th this animal, which was rather thin and had an initial temperature of 103° F., was injected with tuberculin, but did not show any reaction. Another animal known to be tuberculous, injected at the same time, with the same-sized dose of tuberculin, showed a good reaction. The cow which had received the

injection of attenuated culture had a small lump, the size of an egg, on the side of the neck, where inoculated. The diagnosis of no tuberculosis, as based upon failure of reaction to tuberculin, will be confirmed or disproved by an autopsy later. These experiments were kindly made for me by Dr. Schroeder.

So far as I have been able to find, the first note of successful cultivation of the tubercle-bacillus upon liquids free from albuminoid matter was made by myself in the *New York Medical Journal* of March, 1893. Since then Uchinsky, Proskauer, and others have used similar media. None has, however, reported a better growth than that obtained by a slightly modified form of the original culture-medium. It required some time until I could persuade the germ to grow in this liquid, but after considerable coaxing it will now multiply as well here as on glycerin-peptonized beef-broth, the fourth generation having become accustomed to the change of food.

The formula that I have found eminently adapted and used may be repeated here:

Water	1000 cc.
Glycerin	70 grams
Acid pot. phos.	1 gram
Ammonium phos.	10 grams
Sodium chlorid	10 "
Asparagin	3 "
Magnesium Sulphate	0.2 gram

After a certain amount of growth has appeared in a definite volume of media the growth will entirely cease. The germ has exhausted the supply of nutritive material or eliminated enough poison to check its own development, and, although the germs may still float on the surface of the liquid, after from three to four months there is practically no growth in the liquid. Further, there is a distinct and peculiar odor generated in the culture-media. This is due to a fatty acid which is difficultly volatile with steam. The reaction of the media when inoculated is slightly alkaline. As the growth increases it becomes less so, and finally it is acid in reaction.

In order to see if the apparent loss of virulence of the germ might be due to some of its products contained in the body of the germ, two guinea-pigs were inoculated with the twenty-third generation of the germ, after the germs had been carefully and thoroughly washed with sterile water to remove all products. These pigs, after two months, are still well. The bacillus grown on purely artificial media might naturally be supposed to be still more attenuated than that grown on the ordinary culture-liquid. To test this, some of these germs were used to inoculate guinea pigs, with the same results as those already noted.

In the case of a disease like tuberculosis, in which the incubation-period is often an exceedingly long one, there is a possibility that what now appear immune animals may in time succumb. In view of the fact, however, that all of the checks died so promptly, so long a time has elapsed since, and that all the other animals remained well, it is fair to presume that we have here a true immunity secured by an attenuated germ.

The following notes give the experiments in detail, and in the table they can be noted in a comprehensive form.

The autopsies are not given in full, as they appeared superfluous.

January 18, 1894. Guinea-pigs, Nos. 27, 28, 29, and 30, about three-quarters pound weight each, were inoculated with an emulsion of an agar-culture of tuberculosis, receiving 0.25 c.c. each, in the thigh. This was the eighteenth generation of the particular germ. On February 13, 1894, No. 27 was used to test some tuberculin, and gave a good reaction, although apparently in good health. February 15, 1894, No. 28 was found dead, but the autopsy did not reveal any signs of tuberculosis. No. 27 was found dead on March 19th, two days after it had been fed a large amount of tuberculin. The autopsy did not reveal the presence of any tuberculous lesions. Nos. 29 and 30 were subsequently, within six months, chloroformed and examined, but no signs of tuberculosis were apparent.

February 16, 1894. Healthy guinea-pigs, Nos. 115, 113, 128, and 127, were fed varying doses of tuberculin, from 3 c.c. to 12 c.c. Nos. 127 and 128 succumbed to the feeding, but this proved to be due to the glycerin with which the tuberculin had been mixed.

On March 30, 1894, Nos. 114, 115, 113, 109, and 112 were inoculated with 0.1 c.c. of tuberculosis emulsion from the seventeenth generation of a liquid culture. June 5, 1894, No. 115 was chloroformed, but the autopsy did not reveal any signs of the disease. October 1, 1894, No. 114 was found dead outside of the cage; it had been killed by the rats and the head was badly eaten. The animal was in good condition and fat, and the autopsy did not reveal any signs of tuberculosis. There was a little thickening of the skin and a small non-tuberculous lump at the point of inoculation.

During April and May, Nos. 113 and 112 were fed on three different dates with small doses of tuberculin, but did not show any reaction. Both of these pigs are apparently in good health and entirely well at the present writing, eight months after inoculation. During this time guinea-pig No. 109 had been chloroformed, September 29, 1894, and examined without any signs of disease being apparent. The seventeenth generation of this germ was evidently too attenuated to cause death.

April 4, 1894. Guinea-pig No. 110 was fed with 9 c.c. tuberculin, diluted with sterile water without ill effect.

February 19, 1894, pig No. 122 was inoculated with 0.25 c.c. of tuberculosis culture, the seventeenth generation, and on April 4, 1894, was fed with 25 c.c. tuberculin. The pig was rather thin;

TABLE SHOWING EFFECT OF ATTENUATED TUBERCLE CULTURES AND FEEDING TUBERCULIN IN GUINEA-PIGS, RABBIT, AND COW.

No. of animal.		Fed tuberculin.		Injected tuberculin.		Inoculated with artificial culture attenuated tubercle bacilli		Fed tuberculin.		Injected tuberculin.		Inoculation with tub. gland.	Reinoculated with attenuat'd culture.	Dead.	Chloroformed.	Autopsy.		Present condition
		Date. 1894	Am'nt.	Date. 1894	Am'nt.	Date. 1894	Amount and generation.	Date. 1894	Am'nt.	Date. 1894	Am'nt.	Date. 1894	Date. 1894	Date. 1894	Date. 1894	Date. 1894	Condition.	Date of appearance, Nov. 28, 1894.
Guinea-pigs	27	.....	.....	.....	.....	Jan. 18	¼ c.c. 18th gen.	Mar 17	24 c.c.	Feb. 13	¼ c.c.	.....	.....	Mar 19	.....	Mar. 19	Poisoned with tuberculin; no tuberculosis.	
	28	.....	.....	.....	.....	" 18	"	.....	.....	.....	.....	.....	.....	.....	.....	Feb. 15	.....	
	29	.....	.....	.....	.....	" 18	"	.....	.....	.....	.....	.....	.....	.....	Mar. 19	.....	Organs normal.	
	30	.....	.....	.....	.....	" 18	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	"	
	115	Feb. 16	6 c.c.	.....	.....	Mar. 30	¼ c.c. 17th gen.	.....	.....	.....	.....	.....	.....	.....	June 5	June 5	"	
	113	" 15	4 c.c.	.....	.....	" 30	"	.....	.....	.....	.....	.....	.....	.....	.....	"	.....	Well, fat, and in good condition.
	110	April 5	9 c.c.	.....	.....	.....	.....	.....	.....	.....	.....	July 29	.....	Oct. 29	.....	Oct. 29	Badly tuberculous.	
	141	Mar. 8	18 c.c.	.....	.....	May 16	¼ c.c 20th gen.	.....	.....	.....	.....	July 29	.....	.....	.....	.....	.....	Well, fat, and in good condition.
	142	" 8	26 c.c.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	April 11	.....	April 11	Tuberculin-poisoning.	
	136	.....	12 c.c.	.....	.....	" 16	20th gen.	.....	.....	.....	.....	July 29	.....	.....	Oct. 1	Oct. 1	Organs normal.	
	135	.....	.....	.....	.....	" 16	"	.....	.....	.....	.....	"	.....	.....	.....	.....	.....	Well, fat, and in good condition.
	137	.....	.....	.....	.....	" 16	½ c.c. 20th gen.	.....	.....	.....	.....	"	.....	.....	.....	.....	.....	" " " " "
	213	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	"	...	Sept. 11	.....	Sept. 10	Badly tuberculous.	
	214	Checks	.....	.....	.....	.....	.....	.....	.....	.....	.....	"	.....	Sept. 11	.....	Sept. 11	"	
	215	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	"	.....	Sept. 21	.....	Sept. 21	"	
	133	.....	.....	Mar. 24	½ c.c.	.....	.....	.....	.....	.....	.....	"	.....	.....	Sept. 17	Sept 17	"	
	210	.....	.....	.....	.....	July 27	½ c.c 22d gen.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Well, fat, and in good condition
	211	.....	.....	.....	.....	" 27	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Well, fat, and in good condition.
	125	.....	.....	.....	.....	Feb. 19	¼ c.c. 19th gen.	.....	.....	Mar. 24	¼ c.c.	.....	.....	.....	.....	.....	.....	" " " " "
	122	.....	.....	.....	.....	"	"	April 4	25 c.c.	.....	.....	.....	.....	April 9	.....	April 9	Tuberculin-poisoning.	
	121	.....	.....	.....	.....	"	¼ c.c. 17th gen.	.....	.....	.....	.....	.....	May 16 ¼ c.c.	.....	.....	.....	.....	Well, fat, and in good condition.
	120	.....	.....	.....	.....	"	0.2 c.c. 17th gen.	April 4	3 c.c.	.....	.....	.....	.....	.....	.....	.....	.....	Well, fat, and in good condition.
	119	.....	.....	.....	.....	"	"	.....	.....	Mar. 24	½ c.c.	.....	.....	.....	.....	.....	.....	Well, fat, and in good condition.
	118	.....	.....	.....	.....	"	¼ c.c. 17th gen.	.....	.....	.....	.....	.....	.....	Mar. 19	.....	Mar. 19	Organs normal.	
	114	.....	.....	.....	.....	Mar. 30	"	.....	.....	.....	.....	.....	.....	Oct. 19	Killed by rats.	Oct. 1	No tuberculosis.	
	109	.....	.....	.....	.....	"	"	.....	.....	.....	.....	.....	.....	.....	Sept. 29	Sept 29	"	
	112	.....	.....	.....	.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Well, fat, and in good condition.
Rabbit	141	.....	.....	.....	.....	Feb. 23	17th gen.	.....	.....	.....	.....	.....	July 27 ¼ c.c 20th gen.	.....	.....	.....	.....	Well.
Cow	217	.....	.....	.....	.....	July	20th gen. in the vein.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Tested with tuberculin; no reaction November 20, 1894.

there was a lesion the size of a pea at the point of inoculation, but the temperature was normal. April 9, 1894, this pig, No. 122, was found dead. The organs were apparently normal, except that the bloodvessels of the stomach and intestines were much congested. The pig had evidently been poisoned with the tuberculin; the contents of the intestines were thick and mucus-like.

February 19, 1894. Guinea-pig No. 121, weight 13 ounces, was inoculated with 0.25 c.c. tubercle culture. May 16th it was well and was reinoculated with 0.25 c.c. tubercle culture.

February 19, 1894. Guinea-pig No. 118 was inoculated with 0.25 c.c. of tubercle culture, the seventeenth generation. March 19th, this pig was found dead, but the autopsy did not reveal any signs of tuberculosis.

February 19, 1894. Guinea-pig No. 119, weight 14 ounces, received an injection of 0.2 c.c. tubercle culture, and on March 24, 1894, an injection of 0.5 c.c. of tuberculin. The temperature-reaction was very slight.

February 19, 1894. Guinea-pig No. 120, weight 14 ounces, was inoculated with 0.2 c.c. tubercle culture On April 4, 1894, it was fed 3 c c. of tuberculin. At this time it appeared to be ill, but did not show any reaction to the tuberculin, and the next day was quite well.

February 19, 1894. Guinea-pig No. 125 was inoculated with 0.25 c.c. tubercle culture. March 24th it received an injection of a small quantity of tuberculin, which caused a characteristic reaction.

March 8, 1894. Guinea-pig No. 141, three-quarters of a pound in weight, was given 18 c.c. of dilute tuberculin.

March 8, 1894. Guinea-pig No. 142, healthy, was fed 27 c.c. of tuberculin, but did not show any reaction. April 11, 1894, this pig was dead; the lungs were hemorrhagic, and the bloodvessels of the stomach and intestines much congested from tuberculin-poisoning.

March 12, 1894. Guinea-pig No. 136, healthy, was fed 12 c.c. of tuberculin.

May 16, 1894. Guinea-pig No. 135, weight one pound; guinea-pig No. 141, weight one pound; and guinea-pig No. 136, weight one pound, all received 0.25 c.c. tubercle culture, the twentieth generation. Guinea-pig No. 137, weight one pound, received 0.5 c.c. of the twentieth generation of tubercle culture. Nos. 141 and 136 had both been fed tuberculin once, the others had never been used.

July 27, 1894. Guinea-pigs Nos. 210 and 211, weight one pound each, received 0 5 c.c. of attenuated culture of tuberculosis, the twenty-second generation. At the present writing neither of these animals shows the least signs of tuberculosis.

July 29, 1894. Pigs Nos. 135, 136, 120, 110, 141, 125, and checks, healthy pigs, Nos. 213, 214, 215, and 133, were all inoculated for me at my request by Dr. V. A. Moore, with the material from the tuberculous gland of a badly-diseased cow, No. 286. The inoculations were made beneath the skin of the side. On September 11th checks Nos. 214 and 215 were both found dead, and the autopsy revealed extensive tuberculosis in lungs, liver, and spleen. September 21st, check No. 213 was found dead, the autopsy showing advanced tuberculosis. September 17th, guinea-pig No. 133 was chloroformed for examination, which revealed extensive tuberculosis.

October 13, 1894. Guinea-pig No. 136, one that had been inoculated in May with the attenuated culture, and subsequently inoculated with a tuberculous gland, was chloroformed for examination. Not a sign of disease could be detected and the local lesion from the inoculation had almost healed.

October 29, 1894. Guinea-pig No. 110 was found dead. This was a pig that had been fed upon tuberculin on April 4, 1894, and inoculated with the gland July 29, 1894. The autopsy showed advanced tuberculosis. The other pigs that had been inoculated with the attenuated culture and then the active virus, Nos. 135, 120, 141, and 125, are, at the present writing, quite well, and show no signs of disease. I may find that some of the animals that are now considered immune will eventually succumb to the disease. This, however, does not appear probable, as pig No. 136, examined after the death of all the checks, did not show any signs of disease.

Further, animals No. 137, inoculated with the twentieth generation May 16th, and No. 112, inoculated March 30th; Nos. 120 and 119, inoculated February 19th; No. 113, March 30th; and No. 121 on February 19th, and again on May 16th, are, at this writing, to all appearances perfectly well, having lived from six to nine months after the inoculation.

February 23d, rabbit No. 141 was inoculated with 0.25 c.c. of tubercle culture of the seventeenth generation. July 27th, this same rabbit was reinoculated with the twentieth generation of a tubercle culture, 0.25 c.c. being used. Still the animal is apparently well.

These experiments which, of course, in connection with so important and troublesome a disease, can be regarded as preliminary only, and must be confirmed by a large number of similar ones, serve to show that by the use of attenuated tubercle-bacilli and their products we may be able to control pulmonary tuberculosis. If the twenty-second generation has shown such attenuation and produced so much resistance, then the thirtieth generation, or later, should give still more satisfactory results.

An examination of the table and accompanying notes will also show that tuberculin, when fed in very large doses to supposedly diseased or to healthy pigs, may cause the death of these animals by poisoning. The amount necessary varies from twelve to twenty times the quantity that would give a reaction in a tuberculous cow.

The digestion-experiments referred to in my report, in *Bulletin No. 7, Bureau of Animal Industry, Department of Agriculture,* have shown that the action of tuberculin upon diseased animals is not affected after twenty-four hours in a hydrochloric-acid pepsin-solution, nor by warming with acetic acid. On the other hand, in two cases noted, feeding the tuberculin in small doses, while it did not

prevent the disease, apparently retarded it. Possibly a combined feeding of tuberculin and the inoculation with the attenuated germ may be found more useful than either alone.

The fact must not be lost sight of that the number of bacilli injected into an animal may cause great differences in the length of time of the development of the disease. There could be no error of this sort, however, in the experiments recorded, as the emulsion of virulent and attenuated cultures used for inoculation were prepared in the same way, and a larger quantity of the attenuated culture was used than is necessary in case of a more virulent one to produce death, in five to six weeks.

What conclusions may be drawn from these experiments? We have guinea-pigs made apparently distinctly immune to an active tuberculous virus by the use of an attenuated germ. We have guinea-pigs in which a single injection of a small quantity of tuberculin increased, perhaps, the subsequent immunity secured by injection with the attenuated culture. We have other pigs the immunity of which has not been tested, it is true, by an active virus, but which were inoculated with the attenuated culture many months ago, and are still well, and in which an autopsy of other animals treated in exactly the same way and at the same time showed no signs of disease.

Recently Viquerat claims to have been able by means of subcutaneous injections of the serum of the ass, an animal naturally immune to tuberculosis, to effect cures and improvement in the disease in man. Our attenuated germ may possibly prove very valuable in checking or controlling tuberculosis in animals, especially cattle.

ZINC STEARATE IN THE TREATMENT OF ATROPHIC RHINITIS.[1]

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CONSIDERATION of a disease so prevalent, so disgusting and so rebellious to treatment as atrophic rhinitis appeals at once to both the general practitioner and the specialist. Perhaps from a feeling of incapacity or of indifference these cases are often dismissed with general directions and a solution to use in an atomizer or as a douche. In consequence they migrate from one physician to another, often ultimately to fall into the hands of some one of the numerous charlatans that flock to our large cities. But with some little care and perseverance much can be done. It is with the view of recording my experience with a comparatively new drug that this paper has been prepared. The plan of treatment outlined commends itself because of its exceeding simplicity, and it is within the power of every one to apply. If, as seems probable, it merely arrests the destructive process and renders the patient comfortable and unobjectionable to his friends, it will have served us well. I have taken the liberty of prefacing my remarks with a few words on the nature and general management of the disease, feeling that by so doing the subject would be better elucidated.

The name atrophic rhinitis would imply an inflammatory condition with an atrophic element. When the cases come under our observation, usually there is rarely much of an inflammatory condition present, but there can be no doubt that the early history of these cases is one of inflammation. Bosworth[1] has clearly demonstrated, and I believe his views are accepted by a large number of rhinologists, certainly in the United States, that the disease is the successor of that affection in children in which there is a purulent or muco-purulent discharge from the nose, and named for this reason purulent rhinitis.

The atrophic element in a case is at once noticeable. Dilating the alae of the nose, we observe a roomy nasal chamber, the turbinates shrunken often to obliteration of the lower turbinate, and contracting the middle so as to give an unobstructed view through the nasal chambers to the posterior wall of the pharynx, a state incompatible with healthy function of the nasal chambers. We also observe these turbinate bodies, and especially the middle, covered by thickened crusts, which, upon removal leave a reddened surface and rarely an ulcerated spot on the mucous membrane. Before our investigation has reached this stage we are conscious of an all-pervading, disgusting odor emanating from the nose, which is likely to be increased on detaching the crusts. This has given rise to the name "ozena," a term which, while highly descriptive of one symptom, *i. e.*, stench, cannot be used as a synonym. Ozena simply represents a condition present in many cases of the disease, but not in all. The same condition is present in syphilitic and in carious disease, both of which are entirely distinct and will not receive consideration in the present article.

These two symptoms, the crusts and the ozena, give the keynote to the management of this intractable disease. When we obtain a clear conception of their production and can apply means for their permanent eradication we have solved the difficulty. In making this assertion I have not lost sight of the fact that several important physiologic purposes of the nasal chambers have been abrogated when this disease is well marked. Though a firm

[1] Read at the eleventh annual meeting of the New York State Medical Association, held in New York, October 10, 1894.

[1] Bosworth: Diseases of the Nose and Throat: the Nose and Naso-pharynx, p. 162.

believer in the rôle of the turbinate bodies in adding to the moisture of the respired air, so ably enunciated by Bosworth, and in their salutary office in filtering deleterious matters in the inspired air, and also cognizant of the important office of the nasal mucous membrane in secreting mucus, yet I cannot but believe that these offices can, in a measure, be compensated for, and indeed, as we shall see later, in studying the pathology of the formation of crusts, this must be accomplished if we are to meet with success in getting rid of the obnoxious symptoms.

To meet with success in the management of a disease we must have clear ideas of its pathology.

What is the pathology of the formation of crusts and its accompanying ozena? The limits of this paper forbid anything like a full consideration of this subject, and I will advert to points just sufficient to give us a firm basis on which to found our therapeutic measures. I have already stated that the primary stage of atrophic rhinitis is one of inflammation. This inflammation is of sufficient intensity to be attended with suppuration; succeeding it we have sclerosis or atrophy of the mucous membrane. The cavernous tissue of the turbinates and the glandular tissue are all involved in this process, so that ultimately there is little left covering the bones but the connective tissue, with a few glands whose function has become perverted from the contraction to which they have been subjected.

What is the effect of this sclerotic process on the physiologic purposes of the nasal chambers? The venous channels within the cavernous bodies, whose function it is to add moisture and heat to the respired air, are destroyed, and hence the air passes through the nasal chambers poorly prepared for its ultimate purposes. The large number of mucous glands contained in this membrane are also destroyed or perverted in their secretion to such a degree as to be totally inefficient for the purpose for which they are designed.

With this knowledge of the pathology, we are able to give the most plausible explanation of the crusts and the ozena. The glandular secretion being denied, the large admixture of water which is normally present contains a large proportion of solid matter, which collects on the turbinates and undergoes decomposition or fermentation, and hence the odor.

With this view of the causation of the two essential elements of atrophic rhinitis before us we should strive to adopt measures of treatment looking to the restoration of these functions. The first step should be the entire removal of all crusts from the mucous membrane. Unless we are faithful and persistent in our efforts in this direction we cannot hope to meet with success. This is but a necessary prelude to the important step of bringing into contact with the diseased mucous surface medicaments of a stimulating nature, which will excite the perverted glands to secretion and perhaps aid in the regeneration of the mucous membrane. The method of accomplishing this object will vary with the operator; that is immaterial; the object is absolute cleanliness. The plan pursued at the Episcopal Hospital, Philadelphia, is about as follows:

The nasal chambers are sprayed thoroughly with an antiseptic detergent solution, after which all rebellious or adherent crusts are removed with a small probe, the extremity of which is wrapped with a pledget of cotton; as this process is likely to be painful, it is well to first prepare the sensitive mucous membrane by a preliminary spraying of a 4 per cent. solution of cocain. By this means also the cleansing is done more effectively. Should the crusts prove unusually tenacious in their attachment, or should a layer of muco-pus cover the turbinates, the cotton-tipped probe is dipped in a solution of hydrogen dioxid and the crusts or pus is dissolved away. This latter is succeeded by another spraying with the antiseptic fluid, to remove the dissolved and frothy mucus or pus. While this procedure will doubtless cleanse the anterior nares, there still remains a large surface uncleansed, viz.: the posterior surface of the turbinate bodies and the vault of the pharynx—the latter especially being liable to be the seat of inspissated mucus.

The post-nasal surfaces are probably better and more easily cleansed with the post-nasal syringe or by atomization. However, even in this locality the crusts are frequently so tenacious as to defy the usual methods with syringe or spray. In such cases they must be removed by means of a cotton-tipped probe bent at such an angle as to pass readily behind the soft palate and up to the vault of the pharynx. To effect this satisfactorily, and to avoid wounding the sensitive tissues of the upper pharynx and vault, and even the pharyngeal orifice of the Eustachian tube, full illumination with the aid of a rhinoscopic mirror should be employed.

I have dwelt thus on the details of cleansing, doubtless familiar to all present, to emphasize the fact that without it all subsequent treatment will be futile. Assured that our cleansing has been effective, we are ready to apply to the mucous surface our medications.

Compounds of zinc stearate have for their base zinc stearate, to which may be added any drug that the operator deems necessary for the case. They are dispensed as an amorphous powder, which has a saponaceous or oily feel when handled, and has a peculiarly strong adhesiveness to mucous surfaces. Drugs in powder-form have for many years been used in the treatment of atrophic rhinitis, but within

a few years past there has been a tendency on the part of rhinologists to discard them from their armamentarium. I think the reason for this has been the exceedingly limited time a drug in powder-form could be depended upon to adhere to the mucous surfaces, and hence the utter uncertainty as to the beneficial effect accruing therefrom. It has occurred to me that possibly whatever merit the compounds of zinc stearate possess is due to the tenacity with which they adhere to the mucous surfaces, and thereby exert an influence for a prolonged period.

The indications for treatment, as already stated, are that we shall have some drug of a stimulating nature for the purpose of exciting the perverted mucous glands to increased activity, and, if possible, aid in the regeneration of the destroyed tissue. Europhen[1] was the stimulant selected for incorporation with zinc stearate. After the cleansing process, a powder of zinc stearate, with europhen, 25 per cent., was blown into the nasal chambers with the insufflator, so that a thin layer of the powder was apparent over the middle and lower turbinates and the septum.

The observations in the use of this drug have extended over a period of a year-and-a-half at the clinic of the Episcopal Hospital, and they include fifty-four carefully selected cases, *i. e.*, those in which crusts were invariably present, and in the majority accompanied by ozena. All cases presenting simply an atrophic or rather sclerotic condition of the turbinates, unaccompanied by crusts or ozena, have been rigidly excluded, for the reason that they admitted of a doubt as to the diagnosis between the secondary sclerotic change of hypertrophic rhinitis and the disease in question. All of these cases were seen in dispensary service, a source admittedly difficult and unsatisfactory in making deductions or drawing conclusions.

As a matter of convenience and in order the better to study the results, these fifty-four cases have been divided into three classes: (1) Those that were persistent in treatment and faithful in attendance; of this class there were twelve. (2) Those that presented themselves at the clinic at irregular intervals, though seen at times over nearly the whole period of these observations, namely, eighteen months; this class numbered twenty. (3) Those that presented themselves but once or twice after the first treatment; these, numbering twenty-two, have been excluded from all deductions; therefore the observations may the more properly be said to cover thirty-two cases.

The treatment was employed twice weekly; in the interim of the visits, the patient was directed to use a hand-atomizer containing a solution of Seiler's tablets.

[1] Europhen: U. S. Dispensatory, 1894, p. 1628.

After the first cleansing and subsequent insufflation there was in all cases an entire absence of odor, and in the larger number this was persistent, no odor being perceptible upon any of the subsequent visits. It is quite evident to all rhinologists that simple cleansing is not sufficient to effect this result. In five of the most pronounced cases an odor was still perceptible at three, or at the most four, visits subsequent to the first cleansing and treatment, after which it entirely disappeared in the three that belonged to the first class; whilst in the two that fell in the second class, the odor, after the fourth or fifth visit, though still present, was markedly diminished, leaving me to infer that had the treatment been faithfully continued the result would have been the same as in the first class.

As to the crusts, in the large majority of cases no crusts formed after the first treatment; the appearance presented at the subsequent visits was that of a thin layer of muco-purulent secretion covering the turbinates, which became smaller and smaller in quantity at each subsequent visit until finally it disappeared, leaving the turbinates moist and free from the familiar dull, glazed appearance.

Whilst this was the general result, in the five cases noted as persisting in odor of an unusually rebellious nature the crusts adhered tenaciously; but even in these, after three or four insufflations, the three cases belonging to the first class showed a marked improvement. In two of the three the crusts, and finally the muco-purulent secretion, entirely disappeared, leaving the mucous membrane as already described. In the remaining one this thin muco-purulent secretion still persists, notwithstanding an amelioration of all other symptoms both subjective and objective.

In one of the two cases of the second class, or that of indifferent attendance, after an interval of nearly two months, in which time even the cleansing at home was continued in a very irregular manner, there was a reappearance of the crusts, but in no such number or of as great tenacity as when the treatment was begun; they were easily dislodged by ordinary spraying. In the remaining case of the second class, in which the cleansing at home had been carefully done, though attendance at clinic had been irregular, the crusts disappeared, though there is some muco-purulent discharge. In all the cases, after a few insufflations, the nasal mucous membrane presented an entirely different appearance, the dry, shrunken, lifeless membrane being replaced by a reddened, moist, and actively-secreting surface. In two of the cases in which the improvement was the most marked there seemed to be something like a regeneration of the turbinate tissue, though I am not prepared to admit that this is really the case; whilst there undoubtedly was an increase of tissue over

the shrunken turbinates, this has not assumed the appearance of true cavernous tissue.

To sum up: In a total of thirty-two cases of atrophic rhinitis that have been under observation, the shortest time being two months, the longest eighteen months, there were twenty-seven in which there was a complete disappearance of crusts and odor, and two of these cases promised a restoration of normal functions and structure. In five the results are very doubtful, though the improvement is sufficient to promise more for the future.

What is the rationale of this treatment? The first thorough cleansing enables us to apply a stimulating preparation for a long period of time to the mucous surfaces, thus exciting the remaining mucous glands to increased activity, throwing off larger quantities of water, which, bathing the tissues, prevents the formation of crusts and the consequent odor. It may be said that by thorough cleansing we accomplish all that is claimed for this treatment. I have never seen, even when the utmost care has been observed in cleansing both by the physician and by an intelligent patient, such thoroughly clean nasal chambers as after a few weeks' treatment of combined cleansing and application of compounds of zinc stearate. Again, while it is true that thorough and persistent cleansing removes all odor, and, in a measure, all crusts, there still remains that dry, unhealthy, glazed mucous surface; and here, to me, is the most noticeable beneficial change.

Whilst subjective symptoms play a very unimportant rôle in making up our prognosis in this disease, it has a most important bearing in the mind of the patient. The testimony of those who have pursued this treatment is the same—that it is followed by great relief of the feeling of fulness and dryness and other uncomfortable sensations about the head and throat, and that this persists nearly up to the time for the next treatment. I firmly believe that were there not some relief to the feelings of the patient we would not have had among fifty-four cases even as many as twelve to return each time, and twenty more to return at intervals.

These insufflations have been made twice a week. It has occurred to me that perhaps a more frequent, say daily, use would produce results more promptly and of more lasting character. It could easily be accomplished with intelligent patients by first instructing them as to the method of cleansing by means of the atomizer, to be followed by blowing the powder into the nostrils. The method of Ingalls,[1] of Chicago, commends itself to me to accomplish this latter maneuver.

It cannot be claimed zinc stearate is specific; indeed, it is too early to even assume that it is of real benefit; all that can be said is that the trial justifies a continuance of the plan and a further study as to the permanence of the effects. There may be other methods just as serviceable, but to me this has rendered the best service because of its simplicity of application, its effectiveness in relieving the distressing symptoms, and the comfort that it seems to induce.

CLINICAL MEMORANDA.

A LARGE ROUND-CELL SARCOMA OF THE UTERUS.

BY JOSEPH McFARLAND, M.D.,
DEMONSTRATOR OF PATHOLOGICAL HISTOLOGY AT THE UNIVERSITY OF PENNSYLVANIA, PATHOLOGIST TO THE KENSINGTON HOSPITAL FOR WOMEN.

IN the summer of 1893 I received from Dr. Charles P. Noble, Surgeon-in-Chief to the Kensington Hospital for Women, some fragments of tissue removed with a curet from a case diagnosticated as sarcoma of the uterus, with the request that I would submit them to careful microscopic study, to determine their nature and establish their malignancy. Knowing that sarcoma of the uterus is a much more rare affection than is generally conceded by gynecologists, and hoping to discover an interesting case, I imbedded, cut, and carefully examined, several of the largest fragments. Disappointment followed, for the tissues were found to be fibrous instead of cellular, and were in a state of universal myxomatous degeneration. With the exception of an occasional leukocyte, small hemorrhagic areas with well-preserved erythrocytes and a few muscle-cells, the entire structure of the tissue-constituents was destroyed. There was no clinical question of doubt as to the existence of a tumor of the uterus, but of its nature nothing could be determined from an examination of the removed masses. Satisfied that there was nothing malignant in what had been sent to me, and recognizing the condition as one quite common in sub-mucous fibroids of the uterus, I rendered my opinion that *there was no malignancy in the case, but that the patient in all probability suffered from a sub-mucous fibroid which was ulcerated and degenerated.*

This opinion made very little difference in the treatment, for, when after appropriate topical measures, the condition was found to grow worse rather than better, Dr. Noble removed the whole uterus.

When I opened the uterus by an anterior incision extending from the cervix to the fundus, a large, ragged, ulcerated tumor—unquestionably a fibroid—was found projecting from the superior posterior surface into the cavity of the organ. It was circumscribed everywhere except at its broad pedicle, which was very intimately attached to, indeed almost continuous with, the uterine wall.

[1] . . . "By means of a glass tube, about four inches in length, with a caliber of about one-eighth of an inch, which is attached to a rubber tube, through which the patient blows the powder into his nose. The glass tube is disconnected from the rubber; its round end moved about in the powder until it is filled up about one-quarter of an inch; the same end is then reintroduced into the rubber tube, and the flattened end of the glass tube introduced into the nostril. The patient then places the other end of the rubber tube between his lips and gives a quick, strong puff, which forces the powder into the naris."—*Journal of the American Medical Association*, Sept. 15, 1894, p. 424.

After careful macroscopic examination I reported that the examination of the gross specimen confirmed the microscopic diagnosis and that the specimen was one of fibroid tumor.

The later history of the case is best described in the following letter:

PHILADELPHIA, December 21, 1893.

DEAR DOCTOR MCFARLAND:

Perhaps you will recall a specimen from a case of sarcoma of the uterus which I sent you last summer. You reported to me that the patient had a myxomatous degeneration of a fibroid tumor, and that it was a perfectly benign growth.

I removed the entire uterus upon the diagnosis of sarcoma, and will herewith give you the history of the patient since the operation. She promptly recovered, and remained well until about six weeks ago, when pain developed in her right chest. Consulting her family physician, she was told that she had water in her chest. Shortly after this she was obliged to go to bed. Her respiration was profoundly embarrassed. The chest was aspirated, but only about a pint of blood-stained serum could be removed, and apparently there was no more fluid in the chest. She was very slightly relieved by the operation. At this time several small tumors, one under the skin of the breast, another under the skin of the loin, and a third under the skin of the thigh, appeared.

About two weeks ago I saw her after she had been ill for some five weeks. She was breathing eighty times per minute, and her pulse was so rapid that one could scarcely count it. There was absence of respiratory sounds from over the front of the chest, and evidence of consolidation of the lung over the back of the chest, on the right side. She refused further interference and died about a week later. No post-mortem examination could be obtained.

Kindly let me have your opinion of the case. Was it carcinoma or sarcoma? The evidences of malignancy seem clear to me, as at no time was there any rise of temperature to account for the fluid in the chest upon the supposition of an ordinary pleurisy or of a tuberculous pleurisy. The fluid cannot be accounted for either on the ground of disease of the heart or kidneys, as these viscera were healthy. The appearance of the small tumors in the fatty connective tissue under the thigh and the solid enlargement in the right chest, all point to malignancy. Truly the problems confronting the surgeon are difficult of correct solution in every case, and it is very interesting to have the pathologists with whom to compare notes. I think that after a time each will have a greater respect for the difficulties presented to the other in his work. . . . .

Very sincerely yours,

CHARLES P. NOBLE.

The unexpected course and termination of this case suggested to me that the malignant disease was situated elsewhere than in the uterus. As no autopsy was allowed, the only organ which was at hand for examination was the uterus; and though satisfied that the tumor which it contained was a fibroid, I decided to make a careful study of it. A vertical section was made through the entire tumor, a thin slice removed, and after imbedding in celloidin, large topographical sections (1 x 1½ inches in size) were cut, stained with Delafield's hematoxylon and subjected to careful microscopic study. The appearances were as follows: The edge of the section representing the surface that had projected into the cavity of the uterus was found to be denuded of epithelium, to contain no endometrial glands, but to be incrusted with a mass of coagulated blood and degenerated tissue which had been the source of the fragments first sent for examination and study. Here and there this surface-coating was interrupted by a fissure of considerable size which ascended for some distance into the tumor, and terminated in the lymph-spaces. These fissures were the separations between the tissue-bundles making up the tumor. The tumor-substance was of unstriated muscle-tissue mixed with considerable fibrous connective tissue (myofibroma), and was perfectly typical near its attachment, though inclined to be hemorrhagic and myxomatous at the exposed surface. Whether the exposure of the surface was due to the ulceration of the tumor through the endometrium, or to the damage done by the curet, was not possible of determination. As far as has been described, the tumor was an ordinary fibroid. If one began to study the lymph-spaces of this tumor at one of the fissures upon the surface, and gradually ascended into its substance, a rather remarkable series of cellular constituents became visible. As the description of the changes will follow more naturally in a description beginning above and gradually descending, I shall follow that order.

Scattered through the substance of the tumor there were occasional patches, at first sight suggesting small inflammatory areas, consisting of very uniform, small round cells, not arranged with any regularity, but extending indefinitely into the surrounding lymph-channels, only moderately infiltrating the tissue. Where the larger lymph-spaces began to enter the sinuses extending from the surface of the tumor into its substance, it could be determined that these round cells bore a definite relation to these sinuses, in some places accumulating so as to blockade them, in others forming thick marginal linings; in still other places the cells did not appear to occupy the spaces; but formed masses in their close proximity. As the lymph-spaces and channels were followed through the tumor to the sinuses upon its surface, it was evident that this cellular development was a change common to most of them, and extending over a considerable part of their length. While the small cells near the interior of the tumor were about the size of leukocytes and much like them in appearance, their size and appearance changed so that they became larger, and they occasionally presented two, three, or four, or even five nuclei, and in many instances assumed much the appearance of epithelial cells. Between the small round cells and the large multinuclear cells a great variety of transition-stages could be traced. In certain areas in which these large cells were subjected to lateral pressure the appearance of columnar epithelia was suggested. It is not possible, however, that the cells could have had such a parentage.

As the cells were carefully observed in descending from the interior to the surface of the tumor, a peculiar degeneration of the protoplasm of the cells was evident. This caused a greater bulk of protoplasm, an abnormal transparency and a viscidity which allowed the coalescence of neighboring cells and the formation of giant-cells, and even at the lowest points of protoplasmic nucleated masses such as were described by the older pathologists as "nucleated protoplasm." This degenerated protoplasm tinged well with eosin and was quite characteristic of that called *hyaline*. At the very surface of the tumor the destruction of the cells was so great that their

detritus, together with the myxomatous degenerated fibers of the tumor and the extravasations of blood, formed a common coagulation-necrotic mass.

The examination of the cervix and walls of the uterus showed no important changes. Many of the cellular extensions passed from the tumor into the fundus of the uterus, but high up the changes were inconspicuous and the number of cells small.

The peculiarities of the case were marked. The inference, which seems justifiable from the careful research to which the specimens were subjected, seems to point to a primary change in the lymph-channels with the hyperplasia of the endothelia and connective-tissue cells associated with them, and the production of a tumor at least similar to that variety of sarcoma called *endothelioma*. Added to this there were degeneration and the production of monstrous cells. The gaping sinuses and large lymph-spaces connected with them suggest the easy passage of these cells through the lymph-circulation of the uterus, their entrance into the general circulation and the consequent production of the metastatic tumors which caused the death of the patient.

It should also be observed that the amount of sarcomatous tissue in the tumor was small, so that the metastasis originated in all probability from what would have been regarded as an almost insignificant lesion had not such disastrous consequences followed its development. The case also illustrated the changes, so little understood, by which a perfectly benign tumor may change to a malignant one.

DYSPNEA AFTER EXCISION OF THE TONSILS.

BY GEORGE WALKER, M.D.,
OF YORKVILLE, S. C.

EXCISION of the tonsils when properly performed is generally considered an easy operation and devoid of danger. I have lately had a case that deviated somewhat from the general rule.

The patient was a stout, well-developed female, twenty-two years of age, who had every appearance of being in perfect health. She was only slightly nervous at the beginning of the operation.

The tonsils were considerably enlarged from repeated inflammations. The throat was sprayed with a 4 per cent. solution of cocain. The left tonsil was then excised by a good tonsillotome; the operation was easily performed, and with very little pain. In a few minutes the patient said she felt sick and very faint, but these symptoms passed off in a little while. The other tonsil was then cut away in the same manner without difficulty, and without much pain. The whole of both tonsils was taken out. The woman again complained of faintness and sickness, but there was no vomiting. As these symptoms did not pass off as before, she arose, walked to the bed, and lay down. Shortly after this I noticed that her respirations were difficult, and she said that she was choking. On close examination the trouble seemed to be due to spasm of the respiratory muscles; her arms and hands began to cramp, the fingers assuming a claw-shape. The breathing became still more difficult. She rolled from side to side on the bed, her hands clutching her throat; she gasped for breath, and said in a husky voice, "I am choking—I am choking to death!" The face was very red, the pulse somewhat quickened, but regular and strong.

The symptoms increased in gravity; the respiration got still more difficult, shallow, and jerky, and finally ceased entirely. The head was lowered and artificial breathing was begun. In a short time the respiration came back, but it was of the same hard, difficult nature; it continued thus for about forty minutes, and in spite of all efforts ceased again; it was an entire stop, and I was certain that she was dead. We again commenced artificial respiration vigorously, and after prolonged efforts she gave a jerky breath; I stopped a moment and told her to breathe. She did so, then ceased. I told her again, and she did so. By continuing the artificial respiration and telling her in a loud voice to breathe, breathing was finally established, though still somewhat hard. It gradually got easier, and remained so. She came to herself, asking her whereabouts and what had happened, seeming to have no recollection of anything except her throat being sprayed the first time. I think the trouble was caused either by irritation of the respiratory nerves or by toxic action of cocain, most probably the latter. As stated, only a 4 per cent. solution was applied by means of an atomizer. None was injected, and the woman was directed to swallow none. I have knowledge of a case occurring in the practice of a medical friend in which similar symptoms were produced by hypodermics of a 10 per cent. solution of cocain preparatory to the removal of a lipoma.

MEDICAL PROGRESS.

Sub-diaphragmatic Abscess Communicating with the Right Pleura Successfully Treated by Costal Resection and Drainage.—At a recent meeting of the Clinical Society of London, MACKENZIE and ABBOTT (*Medical Press and Circular*, No. 2895, p. 453) reported the case of a boy who came under observation in the fourth week of an illness of sudden onset and characterized by severe pain in the epigastrium and right hypochondrium, together with vomiting. A week after the onset a swelling was noticed in the epigastrium. The right side of the chest yielded the physical signs of a pyo-pneumothorax. The swelling in the epigastrium became more prominent when the patient sat up or coughed, and gave distinct evidence of fluctuation. It was concluded that there existed a sub-diaphragmatic abscess communicating with the right pleural cavity, and it was decided to drain both by an opening in the pleura. Accordingly the sixth rib was resected just behind the mid-axillary line, and thirty ounces of exceedingly offensive, thin, watery pus, containing some flakes, were evacuated. On exploration with the finger the upper surface of the liver was felt through an opening in the forepart of the diaphragm. The whole cavity was well irrigated with a warm boric-acid solution, and a double drainage-tube was inserted. The cavity was irrigated daily, but the discharge continued to be offensive for several days. On the thirty-fifth day after the operation the wound was almost healed and there was no discharge. The patient was dismissed on the forty-seventh day. The lung expanded well, and the only sign to be detected six months later was a slight relative dulness at the base of the right side of the chest. The presence of air as well

as fluid, together with the fetor of the abscess, pointed to the perforation of an air-containing viscus, most probably as a result of gastric or duodenal ulceration.

Femoral Epiplocele in a Woman; Radical Operation.—At a recent meeting of the Section on Surgery of the Philadelphia College of Physicians, Dr. W. J. Taylor reported the case of a woman, forty-six years old, who for twelve years had a lump in the right groin which gave no trouble until about four or five months before coming under observation, when it enlarged and became very painful. She was in the country at the time, and went to bed and applied poultices to the swelling. In a few days she was much improved, the pain and swelling relieved, but the mass did not disappear entirely. There was a good deal of swelling above Poupart's ligament and in the inguinal canal on the right side. There was some doubt as to whether it was a new growth or a hernia. With rest in bed and care the amount of inflammatory thickening was very much reduced An incision over the tumor, exposed a very hard tense sac, which was easily dissected away, and an omental hernia was found just above the internal inguinal ring. The sac was then opened and the omentum drawn out until a healthy portion was reached, around which a ligature was passed and the mass removed. The sac was dissected free from adhesions and ligated with silk. The whole mass showed evidence of long-standing inflammation. On closing the abdominal ring the mass was discovered to be a femoral hernia. The edges of the canal were approximated with two sutures, without injury to the artery; during the operation only one small vessel required ligation.

Perforation of a Typhoid Ulcer in a Young Child.—Schofield (*British Medical Journal*, No. 1763, p. 809) has reported the case of a boy one-and-three-quarters years old who presented failure of appetite, with vomiting, loss of flesh, abdominal distention, considerable diarrhea, and slight cough. These symptoms gradually increased in severity and led to a fatal issue. Upon post-mortem examination a few flakes of lymph were found between the coils of the intestine and about the liver and spleen. One of the lower coils of the small intestine was adherent to the front of the cecum, and between the two was a small cavity whose walls were completed by lymph. This cavity contained some fecal matter, and on further examination was found to open into the ileum about ten inches from its lower end, by a clean-cut perforation one-third of an inch in diameter, in a Peyer's patch. In the same patch was seen another small ulcer, and below this there were a dozen similar ulcers extending as low as the cecum, in which two ulcers were found. All of the ulcers were more or less circular, with sharp edges and smooth floors. There was no noticeable enlargement of the mesenteric glands. The spleen was soft and slightly enlarged.

Neuritis Simulating Progressive Muscular Atrophy, Associated with Nystagmus and Increase of Knee-jerks.—Moyer (*Journal of the American Medical Association*, vol. xxiii, 1894, No. 17, p. 647) has reported the case of a woman twenty-one years old who complained of progressive loss of strength and wasting of the hands and arms, of four years' duration, without previous injury or serious illness. At first there was much pain in the hands, which would dart up the forearm, together with numbness and tingling, but subsequently sensation became impaired. The hands were held in a claw-like, semi-flexed position, but there was no contraction of the flexor tendons. Fibrillar tremors were occasionally to be seen in the wasted muscles, which manifested the reaction of degeneration. Nystagmus was present, but the eye-grounds displayed no lesion. The patellar tendon-reflex was exaggerated on both sides, with prolonged ankle-clonus. The girl, who was a servant, was compelled to have her hands in cold water a good deal, and the wasting and weakness, as well as the sensory changes, were ascribed to a peripheral neuritis dependent upon this exposure. The nystagmus and exaggerated reflexes were attributed to associated disseminated sclerosis.

Myxedema Due to Actinomycosis.—Köhler (*Berliner klinische Wochenschr.*, No. 41, p. 27) has reported a case of myxedema in a woman forty-eight years old, who for eight months presented a swelling of the anterior aspect of the throat, at the outset attended with redness. It was stated that the swelling had been treated with poultices, in the sequence of which a discharge of blood and pus took place. Several surgical operations had been performed, but a slight suppurative discharge persisted. The ulcerated surface was curetted and the case appeared to progress favorably, but subsequently incision became necessary, and resulted in the evacuation of pus containing granulations characteristic of actinomycosis, and which upon microscopic examination disclosed the presence of this fungus. A free excision was made, exposing the partially destroyed thyroid gland. The wound was thoroughly curetted, and finally treated with the thermo-cautery. Granulations soon formed, and closure of the wound was expedited by skin-grafting. With the improvement in the local condition the symptoms of myxedema likewise receded. The portal of infection could not be learned. Reference is made to another case in which symptoms of myxedema were dissipated by anti-syphilitic treatment.

Myxedema in Children.—Northrup (*Archives of Pediatrics*, vol. ii, No. 11, p. 793) has reported two cases of myxedema in children, one in a girl nine years old, and the other in a boy twelve years old. In the first the symptoms appeared at the age of nine months, and from this period the child had scarcely developed, not only mentally but physically as well. Both were treated with a glycerin extract of sheep's thyroid, of which one dram represented one gland from a young animal. One minim of this was administered three times a day, the dose being increased one minim every second day until the temperature rose, the attempt being made to keep the temperature at a point just below 100°. In the first case the treatment was continued for eighty days, and was attended with diminution in the size of the tongue, improved expression of the countenance, ability to take more and varied food, and the acquisition of two teeth. In the second case the treatment was pursued for seventy-six days, and the improvement was more noteworthy.

THERAPEUTIC NOTES.

The Treatment of Diphtheria with the Antitoxin.—KÖRTE (*Berliner klinische Wochenschrift*, 1894, 46, p. 1039) reports the results obtained in the treatment of 121 cases of diphtheria with the antitoxin. He divided the cases into three groups: (*a*) severe cases; (*b*) cases of moderate severity; (*c*) mild cases. Of the whole number recovery ensued in 81 (66.9 per cent.), and death in 40 (33.1 per cent.); while from June, 1890, to December 31, 1893, among 1160 cases of diphtheria the proportion of recoveries was 54.9 per cent., and that of deaths 45.1 per cent. In the intervals between the periods of treatment with the antitoxin, at a time when none of the remedy was to be had, among 106 cases there occurred 49 recoveries (46.2 per cent.), and 57 deaths (53.8 per cent.) Considering 121 cases treated with antitoxin according to their severity, there occurred among (*a*) 43 severe cases, 41.8 per cent. of recoveries and 58.2 per cent. of deaths; among (*b*) 47 cases of moderate severity, 70. 2 per cent. of recoveries, and 29.8 per cent. of deaths; and among (*c*) 31 mild cases, 96.7 per cent. of recoveries and 3.3 per cent. of deaths. Fifteen of the cases occurred in children under 2 years of age, with 8 recoveries and 7 deaths. Tracheotomy became necessary in 42 cases on account of threatening dyspnea; of this number 20 (47.6 per cent.) recovered, and 22 (52.4 per cent.) died, as compared with 22.5 per cent. of recoveries, and 77.5 per cent. of deaths in previous years. Of 108 children under 2 years of age in whom tracheotomy became necessary between June, 1890, and March 31, 1893, 10 (9.2 per cent.) recovered; while of 8 within the same age-limits treated with the antitoxin, 3 (57.5 per cent.) recovered. Fourteen severe cases came under treatment within the first three days of the disease. Of these 11 recovered, while 3 died. In 29 others the treatment could not be instituted earlier than on the fourth day. Of these but 7 recovered, while 22 died. Twenty-three cases of moderate severity came under treatment within the first three days of the attack. Of these 18 recovered and 5 died. Twenty-two others did not come under observation until after the fourth day. Of these 14 recovered and 8 died. In the one mild case that terminated fatally diphtheria-bacilli were not found in the exudate. It appeared that in some cases general intoxication took place so rapidly as to render useless the employment of the antitoxin when the cases came under observation. It also appeared as if the results were better when the initial small dose (200 immunity-units) was increased. In the fatal cases death was due to causes over which antitoxin was capable of exerting no influence. Nephritis was the most common complication. It was not observed that the treatment had any influence upon the temperature or upon the local condition, although the injections were soon followed by distinct improvement in the general condition.

Secondary Effects of the Antitoxin of Diphtheria.—LUBLINSKI (*Deutsche medicinische Wochenschrift*, 1894, No. 45, p. 857) has reported a case of nasal and pharyngeal diphtheria, in a girl eight years old, in which treatment with the antitoxin was followed by the development of erythema exsudativum multiforme. Ten c.c. of Behring's serum (representing 600 immunity-units) were injected on the third day of the attack, and again twice on the fourth day. The local and general conditions underwent decided improvement, although sensitive areas of redness formed at the sites of injection. On the thirteenth day both ankle-joints became reddened and swollen, and in the course of the night a small, measly-like eruption appeared, extending in the course of the following day upon the extensor surfaces of both lower extremities, and subsequently appearing upon the extensor surfaces of the upper extremities. There were also pains in the knee-joints, elbow-joints, and ankle-joints. For several days matters continued thus, the exanthem extending and the pains persisting, but finally both began to subside, and at the end of a week the child was quite well.

Thyroid Gland for Exophthalmic Goiter.—At a recent meeting of the Société Médicale des Hôpitaux, VOISIN (*Gazette Médicale de Paris*, 1894, No. 43, p. 513) reported the case of a woman, thirty-two years old, affected with exophthalmic goiter, to whom he administered twice daily, before meals, from one-and-a half to two drams of thyroid gland from the sheep. After two weeks of this treatment the patient was materially improved. The heart-beat was more regular, and had fallen from 150 to 100 in a minute. The edema of the lower extremities had disappeared, while the thyroid was diminished in size and the exophthalmos had receded. The treatment was thus continued with advantge, being suspended for ten or twelve days every three weeks.

The Treatment of Goiter with Thyroid Gland.—BRUNS (*Deutsche medicin. Wochenschr.*, 1894, No. 41, p. 785) has reported twelve cases of goiter treated by means of the administration of thyroid gland, cases of the parenchymatous variety being selected. Of this number nine were cured or improved, while three proved refractory. Fresh uncooked glands obtained from sheep and cows were employed, and administered in doses of from 75 to 150 grains in cachets or upon buttered bread, at first every two or three days, but subsequently once a week.

For Hemoptysis.—

R.—Ergotini	. . . . .	gr. xx.
Acidi gallici	. . . . .	gr. xl.
Syrupi tolutani	. . . . .	f℥iv.
Aquæ	. . . . .	ad f℥iv.

Misce et fiat mistura.

S.—One teaspoonful to be given every two or three hours. *The Practitioner.*

Thyroid Extract in Insanity, with Goiter.—MCCLAUGHRY (*Journal of Mental Science*, October, 1894, p. 635) has reported two cases of insanity associated with goiter, in which thyroid extract was administered with highly encouraging results. Five grains were given at each meal in the form of tabloids.

In the Treatment of Dry Pleurisy, CÉRENVILLE (*Semaine Médicale*, No. 60, 1894, p. 477) recommends intrapleural injections of sterilized olive-oil, in the sequence of which the pleural friction and pain soon disappear and the remaining symptoms speedily subside.

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THE NERVOUS SYMPTOMS OF CIRRHOSIS OF THE LIVER.

ONE of the oldest chapters in medical science is that which is devoted to the psychology of the liver. "Melancholia," the *black bile*, is the enduring symbol of visceral insanity; it is one of those monumental terms that sum up the history of a science at the same time that they embody an error. It stands for a disease that never had an existence, but which has handed down to present times its ancient terminology, and fastened its name upon one of the most common affections in modern life.

The ghost of this ancient pathology still lingers in our modern text-books. Even now it will not down. A wide domain is preserved for it: the fertile field of the so-called "sympathetic" insanities. VAN HELMONT, we are told, revived the ancient opinions respecting the sympathetic action of diseased viscera upon one another, and especially upon the brain. With him began the era of "visceral irradiation;" he made a sort of recension of that fable of ÆSOP, in which the belly was at war with the members.

The symmetric outlines of this pathology were perfect; all proper analogies were observed in it, as is always the case in good dialectics. Thus, if the peccant viscus was inflamed, the consequent mania by metastasis had all the violence of the inflammatory diathesis; and, on the other hand, if the organs suffered the invasion of some mephitic humor, the consequent psychosis was as black as night. But the blackest of them all was from the liver; *similia ex similibus fiunt.*

There is no organ, says an old authority, with the morbid actions of which the functions of the brain so frequently sympathize as with the liver; and, still more significant, he says, that diseases of the hepatic system will even originate delirium and furious mania, as well as the classic melancholia and suicide. TODD, CHEYNE, and BURROUGHS, all claimed many years ago that they had even found in the liver traces of the morbid anatomy of insanity. Latest of all, RÉGIS, whose work has just been translated, devotes a whole section to "hepatic insanity," and thus completes the ever-revolving cycle of pathology. This brings us to our text.

We maintain that organic disease of the liver is sometimes the cause of grave mental changes; not in the sense of the ancient sympathetic doctrine, although there is some truth in that, too. That doctrine can rest at least upon a broad foundation of gall-stones. We are far from assailing it; in fact, from our own clinical data, we might add a stone or two to its tumulus. We speak in an entirely different sense. We refer to the liver as an *infective* agent in mental disease. We are about to deal here with a form of toxic insanity. And yet, let us note, in passing, our own tendency to revert to ancient methods; what we have seen and what we write here lead us once more to the humoral pathology. By a benign, not vicious, cycle we are led to bear tribute from out of the fulness of our modern science, and lay it at the foot of the altar where worshipped some old Asclepiad. How often is this so!

In cirrhosis of the liver there is observed sometimes a mental affection which is both conspicuous and significant. It is a true toxic delirium, that is to say, it shows the peculiar mental phenomena that characterize, almost without exception, the deliria caused by poisoning of brain tissue. So characteristic are these phenomena that the etiologic factor, *i. e.*, some form of blood-intoxicant, can, we had almost said, be predicated of this class as an essential prerequisite. The mental affection is one of confusion with hallucination. It is a

delirium, in the ordinary English acceptation of that term; not a mania or a melancholia. It is almost identical in form with the delirium, or confusional insanity, that follows prolonged fevers, or the puerperium; or that sometimes explodes as a delirium *grave;* or is seen in the more familiar delirium tremens, minus the tremor. The Germans have the term *Wahnsinn*, which connotes this state.

This *Wahnsinn*, or confusional insanity, whether seen in conjunction with cirrhosis of the liver or any other state, is not, properly speaking, a pure psychosis any more than is the delirium of typhoid fever. It is primarily an affair of the liver when it occurs in cirrhosis, and only secondarily a state of the brain. Purge the obnoxious liver of its humors, and the brain will not be ill. In this sense TUKE, in a recent brochure, emphasizes the fact that the psycho-neuroses are diseases of the body rather than of the "mind." Hence this most instructive, but rather rare, confusional delirium in cirrhosis is an object-lesson of great worth. We see in it, as it were, the brain poisoned, the mind overwhelmed by the infectious materials of the body's own making. We are at the threshold of modern pathology. We are face to face with auto-infection.

It is a curious fact that little note is taken in the text-books of this most important rôle of cirrhosis of the liver. The cause, probably, is the fact that this delirium is rather rare, except toward the very end of the disease. FRERICHS, however, in his great monograph, distinctly notes this complication. He says that delirium occurs in rare cases in cirrhosis, and seems to think that it is due to acholia, as in acute atrophy of the liver. He mentions in the same clause convulsions and coma (seen also in uremia and acetonemia), and seems to imply that the duration of all these crises is brief.

That this latter inference is erroneous, however, our own clinical experience has amply demonstrated. We have seen, in a recent case, a wandering delirium, of mild grade, with hallucinations, and confusion of the identity of persons and places, without convulsions or coma, and, with fair digestion and nutrition, extend over a period of four months, without intermission. During this period there was neither albuminuria nor glycosuria. The ascitic fluid was withdrawn, and reaccumulated four times. Epistaxis was copious at times, but there was neither gastric nor intestinal hemorrhage. The autopsy revealed a hob nailed liver, extraordinarily hard and contracted.

We may note, finally, that in this solitary case an expert analysis of the urine, secured in the hope that it would give evidence of toxemia, revealed nothing but a doubtful trace of acetone. Thus we return to the point whence we started, for we seem to have advanced only by a trace of acetone beyond the humoral pathology and the hepatic psychiatry of the ancients.

THE INJUSTICE OF COMPETITIVE CHARITY.

HAS the medical staff nothing to say as to unlimited endowing of free beds in enterprising hospitals, and the free treatment of anybody and everybody, upon payment of nothing, or of some hypocritically small fee? Is this simply and solely a matter within the control of lay-boards of trustees and of professional philanthropists? These questions are suggested by a widely-distributed circular issued by a large hospital in a city of the eastern United States, which reads as follows:

The Board of Trustees of the —— Hospital of the City of —— strongly recommend the following advantages offered to the public.

Mill and factory owners, lodges, and beneficial associations can secure a bed at the —— Hospital for 365 days by paying $200, and upon averaging the days may have several patients in the hospital at the same time.

Subscription books can be obtained by working people of both sexes up to the age of fifty, subject to the regulations of the hospital, whereby, on paying an initiation fee of one dollar and monthly installments of fifty cents, each subscriber may be treated in case of sickness entirely free of further charge. Heads of families and owners of factories should particularly recommend to their servants and employés to avail themselves of this excellent facility.

Of course, if the medical officers of this hospital have assented to this plan, nothing more in criticism can be said except to ask them:

1. Have you any right to assent to it for *other* physicians who in the course of human events may take your places by and by?

2. If all hospital staffs assent to it, have the non-hospital physicians no criticism to offer and no rights to be upheld?

3. Has the medical profession nothing to suggest as to the encouragement of pauperism and the just claim of members of the profession to some compensation for medical services from those able to pay? Has the public no duties to the medical pro-

fession in this debauching competition in "offering advantages to the public?"

4. By what principle of common justice and decency can it be claimed that well-to do "workmen, lodges, and beneficial associations" are unable to pay medical men something for their services, and that the professionally benevolent should dispose of medical service by virtue of being trustees of hospitals?

In England the impudence of these trustees and dictators of medical men has become a public calamity, and the same trend is more than evident here. Have medical societies and associations, colleges and academies of physicians, no word to utter as to the huge and growing abuse? Instead of permitting or encouraging, they should warn the endowers, supporters, and trustees of hospitals, and the easily deceived public, that the blind sentimentalism of charity almost inevitably ends in wrong and ruin, and that whatever injures the medical profession in the long run injures the health and well-being of the general public.

Not a dollar should be given to any hospital that is not accompanied by an express stipulation on the part of the giver, and by a promise as explicit on the part of trustees and officers, that no person (except in emergency cases, etc.), shall receive medical aid in the institution except it have been systematically and clearly made evident that such person is unable to pay anything for the service. Medical men are already overburdened with necessary or inevitable charity-work in private, hospital, and dispensary practice, but they display a criminal negligence as regards the increase of this evil of charity-abuse, and either supinely submit to the dictatorship of mechanic routine or of trustees, and even go so far as enthusiasm in professional hari-kari. It is high time the brakes were applied.

EDITORIAL COMMENTS.

The Health of the Army.—From the report of the Surgeon-General we learn that the health of the United States Army during the fiscal year ended June 30th differed but little from that shown by the best of army medical records. The admission-rate per thousand of strength present was 1289.04, as compared with 1270.42 for the previous year, a great improvement on the average annual rate of the previous decade (1424.20) and slightly greater than the lowest rate (1247 in 1887) ever furnished by the United States troops. The number of sick daily was 40.15 per thousand of strength, as compared with 39.60 during the preceding year. The number of days lost by sickness equaled 14.7 for each member of the strength of the army, as compared with 14.5 days during the preceding year, and with 15.8 days for the average annual number of the previous decade. The rate of discharge for disability reached its lowest point, 14.93 per thousand of strength, as contrasted with 18.35 during the preceding year and with 28.82 during the years of the previous decade. This result is ascribed to the greater care taken in the selection of men for enlistment. The deaths from all causes equaled 6.91 per thousand living, as compared with 6.44 for the previous year and with 8.51 for the years of the previous decade. Accidents and injuries accounted for 2.90 of the death-rate.

Injuries, as usual, played the most important part in the causation of the admissions to sick report, being the responsible factor in 243.29 of the 1289.04 admissions per thousand of strength during the year. Specific febrile diseases take second place, with a rate of 171.19, mostly due to influenza; diseases of the respiratory and the digestive system take third and fourth place, respectively, with 141.06 and 113.77 cases per thousand men; diarrheal diseases stand fifth, with a rate of 98.47, and malarial affections sixth, with 93.64.

Injuries were responsible also for 7.92 of the 40.15 constantly disabled in every thousand men. Venereal diseases, as in former years, take second place as a disabling cause, having kept 5.41 men unfit for duty among every thousand. Third place was taken by specific febrile diseases, 4.50, the chief factors being influenza and typhoid fever, from the number and duration, respectively, of their cases. Then follow in order of prominence diseases of the respiratory system, 3.45; malarial diseases, 2.45; diseases of the digestive system, 2.09, and of the locomotor system, 2.02, the last mostly cases of muscular rheumatism,

The absolute number of discharges for disability was 413. Seventy-one of these were occasioned by accidents and injuries, including 21 cases of hernia, 53 by venereal diseases; 48 by insanity, epilepsy, and other affections of the nervous system; 44 by pulmonary tuberculosis; 36 by diseases of the locomotor system; 32 by heart-disease, and 24 by affections of the eyes.

The absolute number of deaths was 191. Eighty of these were due to violence or accident, including 25 from gunshot wounds, and 21 by drowning. Pneumonia caused 18; pulmonary tuberculosis, 17; typhoid fever, 16; kidney-disease, 11; alcoholism, 10; heart-disease, 6, and erysipelas 5.

The mean strength of the army during the year was, according to the medical reports, 25,287 men: White, 22,429; negroes, 2,143, and Indians, 715. Both the admission-rate and the rate of non-efficiency of the white troops were larger than the corresponding rates of other races, but the death-rate of the negroes and the death-rate and discharge-rate of the Indians were considerably higher than those of the white troops.

The Indians appear to have suffered more than the whites from mumps, erysipelas, venereal diseases, conjunctivitis, and other diseases of the eye, tuberculosis, pneumonia, and glandular swellings; less than the whites from muscular rheumatism and hernia. The negroes suffered more than the whites from mumps, erysipelas, muscular rheumatism, and frostbite; less than the whites from venereal diseases. The whites suffered more than the other races from malarial and diarrheal diseases

and alcoholism. The high death-rate of the Indian was due to tuberculosis and pneumonia, and his high rate of discharge to the effects of these diseases and of syphilis.

Every Physician to Have His Own Medical Journal.—Our readers will remember our long-time interest in the increase of the number of American medical journals. It has sometimes seemed that the only logical outcome of the present tendency is that every physician, in order to keep abreast of the times, should edit and own a distinct journal of his own. This opera-bouffe crazy-thought, however, has been more than suggested; it is proposed as a business enterprise in downright seriousness and literalness. Can any reader imagine how it is to be done?

The "hustler" who proposes the plan bases his scheme upon what he considers an axiom, viz.: that the present editors of all thriving medical journals are "to-day winning financial success, etc., aided by the journals which they own, edit, etc." Then follows a long list of these remarkable editors—like sample bricks of the Irishman's house—in proof of the astonishing and ingenious discovery.

We have before us a long type-written private letter from "the ——— Medical Journal Company," setting forth the method to a correspondent, whereby the correspondent may secure such a journal for his own private use and behoof, and how the said, the ——— Medical Journal Company, can conform itself to the plan, the entire modus operandi, etc. It will be recognized as an adaptation of the old newspaper dodge of "patent outsides." We can only quote a part of this truly exquisite bit of impudence. In the slang of the day, and in a double sense, "Here's richness," indeed!

First, we will get out a journal in every way as good as the one you have in hand each month, in size, quality, etc. We will allow you one page to be filled with your own items of interest relating to your own doings, those of your patients, friends, and institution, or whatever you may choose. We will carefully eliminate the word ——— from the journal. Instead of it being called the ——— *Medical Journal*, as now, you may give it any name you choose, as the *Grand View Sanitarian*, or *The Lewiston Medical Reporter*, or whatever seems appropriate to you for your location and institution. In the space now used for our motto, "A magazine for the doctor and his family," we will print your name as local editor, publisher, or whatever you wish.

We shall be glad to have at any time short articles of practical value and general interest from yourself or colleagues for publication in the body of the journal, which we will insert as we find opportunity.

In return it is hoped you will take at least one hundred copies of the journal each month at $6 a hundred, additional copies to be furnished you at the rate of 5 cents each. In no case can less than 100 copies be sent. The pay in each instance must accompany the order, and also copy for your local news page, and be received at the home office by the 15th of each month. The price we have made you is cost. (No publishing house in the country could get you up exclusively too such journals as ours for less than $225.) We are able to make this price to you only on account of the great number we issue. Our pay comes through our advertising columns, which are valuable and appreciated.

The gain to be derived by you taking hold of this enterprise is great, we believe, beyond all proportion of the cost. In the first place, it binds you to nothing. You are at liberty to stop whenever you choose. You may secure subscribers to your journal in your own town and county. It will be worth more than the regular price and make it pay for itself in dollars and cents. You can send other copies to desirable parties with your compliments and attention which will win and hold their regard. Other copies left with your druggist for judicious distribution will be like bread cast upon the waters. But undoubtedly the greatest benefit of all will be the prestige that your connection with such a journal will give you and your institution wherever it goes.

In short, there is no end to the usefulness to which doctors may and do put their journals. Please give this matter the careful attention its importance merits.

Very truly yours,

THE ——— MEDICAL JOURNAL CO.,

——— *Manager.*

P. S.—In case you do not care to furnish copy for local page at any time, a notice with cut of your institution can occupy the space very effectively.

The Index Medicus, as we accidentally learn, is about to be discontinued. To publish it without a loss would require about 800 paying subscribers, and the work has been carried on, of course at a heavy loss to the publisher, with less than 300.

The disappearance of this highly valuable publication would be a great misfortune, as everyone will admit who knows or cares anything about the literary aspect of medicine. What few recognize, however, is that it would be a misfortune not to the literary physician alone, but every practising physician would directly or indirectly find himself the worse off, and his patients likewise. In placing at the command of the therapeutist the digested and classified index of all chronicled medical labor, every future patient in one way or another must feel the good and be helped by so much. We cannot practice medicine to the best advantage without in some way or other knowing what our fellows have done and are doing in the same fields of labor.

Now this periodical must not be discontinued! We have a suggestion to offer: In an accurate sense the *Index Medicus* is truly the continuation of the great *Index-Catalogue of the Surgeon-General's Library*, so indispensible to the American medical profession, and such an honor to it and to its authors. Why should not the publication of the *Index Medicus* be continued by the United States Government? If the august legislators will save the money wasted every year on pocket-books and pen-knives for their pages it would probably be amply sufficient to publish the *Index*. At all events, the work is distinctly for the public benefit and use, and the expense of its publication should be borne by the public. Why should it not appear as a part of the work of the office of the Surgeon-General? The library belongs to that department, and its publication of the *Index Medicus* would be both proper and right.

Why will not the College of Physicians of Philadelphia, the Academy of Medicine of New York, and any or all other medical societies pass resolutions or take steps to insure the continued publication of the *Index*.

Mistakes in the Execution of Food Adulteration Laws.—Those who are responsible for the desirable prosecution of offenders against the laws as to the adulteration of foods should be extremely cautious not to make mis-

takes in selecting the articles against which to proceed. Against proprietary preparations, as such, owned or manufactured by non-medical men, there can be no criticism; indeed, medicine is indebted to non-medical chemists and honorable manufacturers for many preparations that have been of great service in therapeutics. It would be a pity if the justifiable intolerance of the nostrum-traffic should proceed to such lengths as to include useful non-secret preparations made by respectable manufacturers. To make a mistake in choosing articles against which to proceed (as, for example, the Ohio Pure Food Commission did in the case of "Vin Mariani," etc.), weakens the power of the prosecutors and creates a prejudice against their judgment. There are plenty of certainly and really adulterated articles, there are plenty of secret preparations and nostrums against which action can be taken with benefit to public health.

The Oyster as a Medium of Transmitting Typhoid Fever.—If current reports can be relied upon, an epidemic of typhoid fever among the students of a New England university has been traced to the ingestion of raw oysters taken from an infected stream. All of the victims had partaken of raw oysters supplied by an oysterman who was in the habit, after taking the oysters from the deep waters, of placing them for some twenty-four hours in the shallows of a river passing near his house. On investigation it was learned that the oysterman's wife had died of typhoid fever at about the time of the epidemic among the students, and that a daughter was also ill with the disease. The drain of the house emptied into the river at a point near where the oysters were placed temporarily. In addition to the students, a number of visitors were also attacked. If the statements cited can be verified, they will have a good deal of significance, and will exert a profound influence on an important industry. On the other hand, it is but right that they should be corrected if they prove false.

The Library of the Office of the Surgeon-General of the United States Army.—During the fiscal year ended June 30, 1894, there were added to the Library of the Surgeon-General's office 1082 medical journals, 214 volumes of *Transactions*, 346 bound pamphlets, 2272 medical books of other kinds, 2258 medical theses and 9053 medical pamphlets. At the close of the year the library was in possession of 33,297 medical journals, 4913 volumes of *Transactions*, 1663 bound theses, 2604 bound pamphlets, 72,090 medical books of other kinds, 52,218 medical theses, and 127,560 pamphlets, a grand total of 183,778. The profession is justly proud of this great library, and will resent any attempt to lessen its usefulness by curtailing its appropriation on the assumed ground of economy. The Librarian, Dr. John S. Billings, and his assistants deserve great credit for their conduct of the library.

The Army Medical Museum at Washington, on June 30th, contained 10,656 specimens in its pathologic section, in its anatomic section 3569, in the section of comparative anatomy 1717, in the microscopic section 12,033, in the miscellaneous section 1894, in the provisional pathologic section 1893, and in the provisional anatomic section 807, a total of 32,269. During the year the Museum was visited by 50,675 persons.

SELECTION.

THE BACTERIO-PATHOLOGY OF THE HUMAN MOUTH AND ITS SIGNIFICANCE IN RELATION TO SYSTEMIC DISEASES.[1]

By PROFESSOR W. D. MILLER,
of the University of Berlin.

I have occupied myself now some fifteen years with the study of the microörganisms of the human mouth, with particular reference to the disturbances that they produce in the mouth and neighboring parts, as well as to their relation to diseases of the more remote parts of the body.

The results of my investigations have been made known from time to time through various publications, and are no doubt familiar to many of the practitioners and students of dentistry here present. I am convinced, however, that this is a subject of quite as much importance to the medical practitioner as it is to the dentist, and I am glad of the opportunity to present a few facts relating to it before an audience composed chiefly of practitioners of medicine, although in the short time at my disposal I shall not be able to present more than a mere outline.

The knowledge that human saliva often contains something which exerts a toxic effect upon the animal as well as the human body is by no means of recent origin.

Many of the ancient writers call attention to this fact, among others the celebrated Galen, who himself was an eye-witness to the operation of killing a scorpion by the action of human saliva, "without the aid of magic." And, further, Aristotle was acquainted with a girl whose bite was as poisonous as that of the most venomous snake. An arrow dipped in her saliva invariably killed any animal that was wounded by it. We can readily understand this now, as we know that the bite of a human being is a very serious matter, and I, personally, would prefer at any time to be bitten by a dog (unless it was suffering from hydrophobia) rather than by a human being. Even the scratch of an instrument infected by usage in an unclean mouth has been known to be fatal, and the case reported by Aristotle can be believed most readily.

Pliny relates, also, that the human saliva is poisonous, and that a snake will flee from human saliva as from boiling water, and that saliva dropped into the mouth of a snake will kill it. In all these years since Pliny no one has taken the trouble to test the accuracy of the statement, although it would be a comparatively simple matter to do so.

In recent times (1834), Eberle refers to the fact that the human saliva contains poisonous elements, and, according to his ideas, its toxic properties depend on the state of the mind at the time being. He found his own saliva to be more poisonous when he was enraged or suffering pain than at other times. He would subject himself to irritating influences in order to become enraged artificially, and noticed that the toxic action was

[1] Read before the Wistar Biological Association of Philadelphia, October 2, 1894.

From advance-sheets kindly furnished by the Dental Cosmos.

increased thereby. Later on many observations were reported, all tending to definitely establish the fact that when smaller animals, as rabbits and mice, are vaccinated with saliva, they almost invariably die within twenty-four or thirty-six hours.

It was believed for a time that the toxic agent was potassium sulphocyanid. However, it was shown by others that the amount of this salt in the saliva is too small to have any influence on the human being; while, in 1881, Pasteur and a score of other observers established the fact that the poisonous character of the saliva is due to the presence of a group of microörganisms, which have been designated as the micrococci of sputum-septicemia.

Since 1881 a great many have occupied themselves with investigations relating to this subject, and have met with no less than thirty-two different species of microörganisms of a pathogenic character in the human mouth, some of them having most virulent properties, besides a large number of organisms which are not pathogenic.

One of the most common results of bacterial action in the human mouth is caries of the teeth. We have not time to enter into a discussion of this process; photomicrographs that I shall demonstrate can scarcely leave any question as to the nature of the process.

A second result is the inflammation of the pulp of the tooth (pulpitis), one of the most common causes of toothache. It is a great mistake to look upon pulpitis as a disease of very trivial nature, because apart from the intense suffering caused by it, and apart from the possible, or often probable, loss of the tooth, it not infrequently incapacitates the patient for the time being for any kind of labor, and when it occurs, as is too often the case, in connection with other disturbances—during gravidity, confinement, or protracted illness—it becomes a disturbing factor of no mean order.

The inflammation of the dental pulp, if left to itself, will almost invariably be followed by suppuration, and eventually by the death of the organ. Putrefaction then sets in, and the pulp soon becomes converted into a putrid, stinking mass, which contains substances (ptomaïns) of an exceedingly toxic nature.

If but a minute portion of such a pulp is forced through the apical foramen it almost invariably gives rise to intense inflammation of the pericementum or lining membrane of the root. The tooth becomes intensely sore; considerable edema sets in; swelling of the cheek and lips, and frequently general symptoms, such as fever and chills, are present, which indicate that a certain amount of the poisonous product has been taken into the system. Usually the inflammation ends in the formation of an abscess, and the pus escapes through the external lamella of the alveolar process into the mouth. Occasionally it finds its way into the antrum or nasal cavity, or escapes externally at the angle of the jaw, under the chin, on the breast, in the arm-pit, etc. After discharge of the pus the process usually assumes a chronic character, and may give rise to no marked symptoms for years, more or less pus, however, escaping constantly or at intervals through the fistulous opening.

These alveolar abscesses are by no means infrequently the cause of secondary complications of a most serious nature; periostitis, osteomyelitis, caries, and necrosis of the bones being some of the most common results of infections orginating in gangrenous or putrid tooth-pulps. Koehler, director of the Charité Hospital in Berlin, observed no less than forty-four cases of this nature in two years. Many cases have been reported in which these processes have terminated fatally through the intervention of septicemia or meningitis, less frequently through edema of the glottis, pneumonia, etc.

A few cases may serve to give an idea of the varied course which the process may take.

Case I.—A child, four-and-a-half years old, with carious teeth in the lower jaw and suppuration in the inferior dental canal, periostitis and ostitis of the vault of the skull, developed general pyemia, death taking place in nine days.

Case II.—In a workman, thirty-six years old, abscesses of some of the teeth of the lower jaw were followed by osteomyelitis, phlegmon, periostitis purulenta, mediastinitis, pleuritis, and pericarditis, death taking place twenty-four hours after the appearance of the phlegmon.

Case III.—A boy, eight years old, had an abscess of the right inferior first molar tooth, followed by suppuration, edema, necrosis, gangrene, sepsis, and death in twelve days.

Case IV.—A boy, nine years old, had abscessed teeth in the right lower jaw, followed by periostitis purulenta, necrosis of the entire side of the jaw, sepsis, and death.

Case V.—A man, forty-eight years old, had abscessed incisors in the lower jaw, followed by osteomyelitis, necrosis, laryngitis, and death.

Case VI.—A woman, twenty-six years old, had an abscess of the right inferior first molar, followed by osteomyelitis and necrosis of the condyloid process.

Case VII.—A girl, fifteen years old, had an abscess of the right inferior first molar, followed by ostitis and periostitis mandibulæ dextræ, endocarditis, pleuritis, nephritis, broncho-pneumonia, and death in four-and-a-half months.

Case VIII.—A diseased tooth in the upper jaw led to inflammation of the antrum, caries of the ethmoid, abscess of the orbit, arachnitis, encephalitis, and death.

The foregoing cases are sufficient to show *some* of the complications arising from diseased teeth. A long list of such cases will be found in the second German edition of my work on *Mikroorganismen der Mundhöhle*, as well as in the *Dental Cosmos* for 1891, p. 706.

A further complication of abscessed teeth that gives much food for thought is illustrated by the following case: A sickly boy, nine years of age, suffering from an large abscess of the right inferior molar, accompanied by periostitis, on attempting to get up, fell from his bed, slightly bruising his thigh. The bruise became the seat of a secondary abscess, the pus of which had the same character and contained the same microörganisms as that discharged by the abscess of the tooth. A large number of similar cases have been reported—cases of acute or chronic pyemia in which abscesses in various parts of the body have been caused by diseased teeth. Baker relates a case in which an abscess on the big toe was cured by the treatment of a suppurating molar. These cases are easily accounted for. From the abscess of the tooth not only are toxic substances constantly

being absorbed, but also pathogenic bacteria from time to time find their way into the circulation, to be redeposited again, and to proliferate anew wherever, at the time being, they may find a *locus minoris resistentiæ*. While, therefore, a focus of chronic suppuration in the jaw may apparently produce no evil beyond the local symptoms, we can never tell but that it may be preparing or keeping up some process in some remote part of the body. Fürbringer puts it very well when he makes the assertion that many of these obscure cases that we are obliged to record as "unknown mycoses" will undoubtedly be traced to their origin when we come to properly appreciate the importance of a thorough understanding of the human mouth as a focus of infection.

Let me call your attention, in the next place, to a condition very commonly met with among the lower classes, and indeed often enough among well-to-do-people, which might be designated as total decay of the teeth. We find nearly every tooth in the mouth more or less decayed, many of them completely broken down, with exposed pulps or abscessed roots, and swollen, suppurating gums. Mastication of food is entirely out of the question, while quantities of pus and bacteria are swallowed with every meal, a condition of affairs to which an attack of measles or scarlet fever were, in my opinion, decidedly preferable. The recent examinations of the teeth of schoolchildren have made some startling revelations in this line. Then, again, we often have in the mouths of uncleanly persons a condition brought about by the action of fermenting and putrefying matter upon the mucous membrane which I have likened to a "spoiled stomach," and designate as spoiled mouth. As early as 1656 Pfaff called attention to the fact that loss of appetite, nausea, etc., are often erroneously attributed to the innocent stomach, when the cause was to be found in the filthy condition of the mouth. Von Kaczorowski has furnished us with very interesting data in support of this view.

The causal relation of diseased teeth, particularly of teeth with putrescent pulps, to chronic swelling of the lymphatic glands in the region of the lower law and neck has been clearly established by Odenthal, who found glandular swellings in ninety-nine per cent. of all children who suffered from badly decayed teeth, and only in forty-nine per cent. of those with sound teeth.

A further condition in which bacterial processes are involved is that known as pyorrhœa alveolaris, in which more or less profuse suppuration takes place about the necks or roots of the tooth, involving the bony socket. The teeth gradually loosen and eventually fall out. Apart from the loss of the teeth, the constant swallowing of pus from such teeth is not to be regarded as a matter of indifference. On n'absorbe pas impunément pendant des mois et des années, des sécrétions purulentes, contenant des agents aussi infectieux que ceux de la pyorrhée alvéolaire. (Gallipe.)

The question of pyorrhœa aveolaris has excited unusual interest recently on account of its supposed connection with the uric-acid diathesis. It remains for the future to definitely determine in how far this affection actually depends upon the uric diathesis for its origin.

The tonsils have already received a great deal of attention as harbingers of pathogenic germs. It is a fact generally recognized that various pathogenic germs, among others even the bacillus of diphtheria and the ray-fungus (actinomyces), may vegetate in the lacunæ of the tonsils without producing any serious symptoms as long as the general health of the person is good, and no lesion or other point of diminished resistance is formed in the tonsils or mucous membrane of the throat. Otherwise an infection is liable to occur at any time.

The literature of this subject is already very extensive and exceedingly instructive, but we have not the time to enter into a further discussion of it.

Another disease of the mouth of parasitic origin is *thrush*. You are all acquainted with its nature and treatment. I will merely state that this is the only disease of the mouth, and in fact of the human body, which is caused by a yeast-fungus. The view formerly held, and still commonly met with in medical journals, that we have here to do with a mold-fungus, has been shown to be untenable.

It is well known that the prolonged administration of mercury or its compounds brings about an affection known as stomatitis mercurialis, the symptoms of which are familiar to you all. Very careful and reliable observations by Gallipe, which have been confirmed by Ritter, leave little doubt that these symptoms are in a great measure due to the action of bacteria upon tissues that had been rendered more susceptible to their action by the influence of the mercury. If the mouth is put in a perfect hygienic condition, as it always should be before the mercurial treatment is begun, much of the trouble arising from this source will be avoided.

Actinomycosis is still another bacterial affection, very often terminating fatally, in which the point of entrance is usually to be found in the mouth.

Of two-hundred-and-twenty-five cases, one-hundred-and-twenty-eight were found to have originated in the jaws, defective teeth most commonly furnishing the *locus minoris resistentiæ*. Of the remaining one-hundred cases many were primary infections of the lungs and alimentary tract, in which, again, the germs entered the body through the mouth.

The relation of mouth-germs to affections of the middle ear (otitis media) merits particular attention. Fifty-four cases have been reported by Maggiore and Gradenigo in which they found the micrococcus of sputum-septicemia twenty-eight times, staphylococcus pyogenes albus eight times, staphylococcus pyogenes flavus five times, and streptococcus pyogenes eight times; all of these being microörganisms very commonly met with in the mouth. They found, moreover, in eighty per cent. of these cases examined, the same germs in the secretions of the mouth and nose as in those of the middle ear. According to Zaufal the microörganisms find their way into the middle ear through the tuba Eustachii. Inflammation of the salivary glands has been shown by various observers to be frequently brought about in a similar manner, bacteria penetrating from the mouth through the ducts of those glands.

It has been established beyond all doubt that the specific cause of croupous pneumonia lies in a microorganism or group of microörganisms that can readily be found in the mouths of the majority of all persons. It is the same group that was referred to in the beginning of these remarks as the chief cause of the toxic action of human saliva, variously designated as micro-

coccus of sputum-septicemia, pneumococcus, meningococcus (from its frequent causal connection with meningitis), etc. Many experiments and observations have been reported which render it highly probable that the infection in case of pneumonia does not take place directly from the air, because the specific microörganisms soon loose their virulence or even vitality in the air. Furthermore, it has been pretty well established that in the breathing of air that contains moderate numbers of microörganisms, the latter lodge in the mouth, nose, and throat, and do not reach the lungs in sufficient number to be able to bring about an infection. It is much more probable that the infection takes place directly from the mouth by particles of saliva or mucus loaded with germs being carried into the lungs in forced inspiration, as in coughing. Whether this act would be followed by the development of croupous pneumonia or not would, of course, depend upon the susceptibility of the lungs or any part of them at the time being. This same group of microörganisms has furthermore been met with in parotiditis, multiple subcutaneous abscesses, tonsillitis, otitis media, pleuritis, endometritis, peritonitis, pericarditis and endocarditis, abscesses of the mastoid process, and retro-pharyngeal abscesses, meningitis, etc.

I find that I have already overrun the time set apart for these few introductory remarks; I shall, therefore, only mention some of the other affections that demand consideration in this connection, such as stomatitis gangrænosa and aphthosa, stomatomycosis, foot-and-mouth-disease, and, particularly, those general diseases that originate in the mouth, or, at least, produce marked local manifestations there, such as syphilis, tuberculosis, diphtheria, influenza, etc., in all of which the thorough and intelligent care of the mouth is imperative in the highest degree.

The foregoing, which is only a mere outline of the subject, may suffice to show what an extensive influence the condition of the mouth exerts in determining the general state of health of the whole body, and how imperative it is that every one practising medicine or any branch of it should be thoroughly informed in regard to this question. It furthermore, in my opinion, justifies the statement that stomatology, or that branch of medical science which has to do with the diseases of the human mouth and their treatment, is perfectly entitled to stand on an equal level with the other specialties of medicine: otology, ophthalmology, etc.

A demonstration was then made by means of photo-micrographs projected upon the screen by the lantern, showing in detail the morphology of the several groups of pathogenic bacteria that inhabit the human mouth.

A full set of slides, illustrative of the author's investigations upon the etiology of dental caries, was exhibited, showing bacteria *in situ* in normal caries and also in that artificially produced by subjecting sound dentin to the action of pure cultures of the specific microörganisms concerned in the production of the disease.

A most interesting slide was one taken from a section of the kidney of a mouse that had been inoculated with the thrush-fungus. The section showed the bacterium *in situ* with inflammatory reaction set up by its presence, thus demonstrating conclusively the power possessed by the thrush-fungus of inducing metastatic inflammatory processes.

The remainder of the demonstration consisted of an exhibit of mouth-bacteria that have been described in detail by the author in several contributions to the *Dental Cosmos* and are embodied in his work, *Die Microörganismen der Mundhöhle*.

CORRESPONDENCE.

THE TREATMENT OF APPENDICITIS.

To the Editor of The Medical News,

Dear Sir: In the clear and emphatic article of Dr. John B. Deaver, entitled, "Further Observations upon the Etiology, Diagnosis, and Treatment of Acute and Chronic Appendicitis," etc., he says (p. 592), the diagnosis having been made, "I at once administer a purgative, preferably castor-oil or salts. If this is not retained I give calomel. If, after the purgative has operated satisfactorily, the symptoms continue along with an increase of intensity of the localized tenderness, I at once operate."

The doctrine maintained is, therefore, this: the diagnosis established, purgation; no amelioration—operation. From this I dissent. A limited experience in private practice has led to the conclusion that medicinal purgation in appendicitis is harmful; that thereby the symptoms are surely aggravated; that the patient always grows worse after taking a purgative, which he is very likely to do on his own responsibility in the outset of the attack.

The formula for medical treatment should be rest, topical applications, rectal enemata. Rectal enemata may be repeated every hour or two until the bowels act freely, if necessary, to the number of twenty.

Finally, the selection of proper surgical cases of appendicitis is a subject for the display of the finest judgment and reasoning. A death without operation is lamentable; complete recovery, patient declining operation, mortifying to its advocate.

Louis Kolipinski.

Washington, D. C.

TESTIMONIAL TO SIR JOSEPH LISTER.

To the Editor of The Medical News,

Sir: Sir Joseph Lister having recently retired from active hospital and teaching work, the occasion has been thought appropriate for presenting him with a testimonial of the esteem in which he is held by his former colleagues and pupils, and committees have, therefore, been formed in Glasgow, Edinburgh, and London for the purpose of raising the necessary funds.

It is proposed that the testimonial shall take the form of a portrait. Subscriptions have been limited to two guineas (about $10.23), and it is hoped that sufficient funds will be collected to permit of some memento of the occasion being presented to each subscriber of that amount.

As there are probably many surgeons in the United States who may wish to join in the movement, but whose names and exact addresses it has been difficult to ascertain, I should be glad if you would permit me to state that subscriptions may be sent to me at 29 Weymouth

Steeet, Portland Place, London W., England, or to one or other of the following gentlemen, who have kindly consented to act as treasurers, viz.: Dr. James Finlayson, 4 Woodside Place, Glasgow, Scotland; Prof. Chiene, 26 Charlotte Square, Edinburgh, Scotland; Prof. William Rose, 17 Barley Street, London, W., England; Dr. Malloch, 124 James Street, South, Hamilton, Ont., or J. Stewart, M.B., 37 South Street, Halifax, Nova Scotia.

I have the honor to remain, sir,

Yours faithfully,

J. Frederick W. Silk,

Honorary Secretary.

NEWS ITEMS.

Foot-ball Incidents.—The events of the past week have most thoroughly discredited the game of foot-ball as at present played. The contest at Springfield between the Yale and Harvard teams was one of the most unwholesome performances that ever masqueraded under the name of amateur sport. Players slugged into unconsciousness, eyes nearly gouged out, brains concussed, disabling sprains and bruises constantly interrupted the progress of the game, which even an ex-ball-player and friend of the sport declares to have been characterized by "sickening brutality." Besides this we hear of a student made insane through injuries received in playing, and two fatal accidents are reported. The number of young men who are permanently injured and who go through life more or less crippled in consequence of foot-ball playing can never be known. We should be sorry to see foot-ball abolished altogether from our colleges. There is no game that equals it in many ways when played as a manly sport and not for gate receipts. But the new rules are plainly ineffective, and unless some change can be made, the game really deserves to be placed under the supervision of boards of health working in coöperation with an efficient police.—*Medical Record.*

In a saloon in San Francisco in a quarrel over a foot-ball game, a foot-ball player was shot, perhaps fatally. The saloon in which the affray occurred was crowded with college students feverishly discussing the game. Loughborough, who is a law student, has University of California affiliations, and after some offensive remarks by Whitehouse, the men attacked one another. Glasses were smashed and chairs were used as weapons before they could be separated. Loughborough's nose was bleeding, and he drew his revolver, firing three shots at Whitehouse, one bullet lodging in his abdomen.

"This talk of stopping the game if it gets rough," said an old Yale player, "is the veriest rot. Superintendent Brynes would have to summon his whole force, and the Governor would be compelled to call out the militia to stop this game. Foot-ball players are not easily bluffed."

A letter protesting against the disorderly conduct of the students after the foot-ball match Thanksgiving Day in San Francisco has been forwarded to the presidents of the University of California and the Stanford University by the saloon-keepers of that city. The students overran the city, breaking chairs and glasses in beer-halls and saloons and terrorizing saloon-men. The police were unable to control them.

Three Yale and Princeton students were arrested after the game in New York, December 1, for drunkenness.

Charles Jones, the youth who sustained a fracture of the skull on Thursday, while playing foot-ball at Camden, N J., was still unconscious last night. It is thought that he will die.

A foot-ball game between a team of college men and the town men of Kirkwood, Mo., Thursday, resulted in the serious and possibly fatal injury of Philip Gauss, quarter-back of the college men's team. He was the under man in a scrimmage, and his physician reports him badly injured internally.

The condition of Bahen, the captain of the Georgetown College foot-ball eleven, who was so seriously hurt in the game with the Columbia Athletic Club on Thanksgiving Day, remains about the same. His spine is fractured, and the pressure on the spinal cord has produced paralysis from the chest down. He will be moved from the College Dispensary to-morrow and be taken to a hospital, where an effort will be made to remove the fractured pieces of bone. The operation is to be made as a last resort, and his recovery is doubtful.

The expenses of one foot-ball team (Yale) for one year (1892) were $15,284.62 and the gross receipts $31,300.71, leaving the net receipts $16,016.09. The net receipts last year were for the same team, $22,914. In 1892 the team paid for drugs, surgical supplies, medical services, and rubbers, $857.89.

Prize of the American Neurological Association.—The American Neurological Association offers a prize of $200 for the best essay on any subject connected with neurological science.

This competition is open to *physicians* who are legal residents of States in North and South America.

Essays must be sent to the Secretary of the Association, Dr. Græme M. Hammond, 58 West Forty-fifth Street, New York City, on or before the tenth day of May, 1895.

Each essay shall be accompanied by a sealed envelop containing the name and address of the author, and bearing on the outside a motto, which shall also be inscribed upon the essay.

Essays shall be type-written, in either the English or French language, and with the pages securely fastened.

The Council of the Association reserves the right to reject any or all essays judged unworthy of the award.

Each essay must exhibit original research, and none will be accepted that has previously been published.

The Antitoxin Treatment of Diphtheria.—A reaction against the unmeasured claims advanced for the curative effects of Professor Behring's diphtheria-serum is setting in rather seriously. The most significant utterance in this respect was made at a meeting on Wednesday, November 28th, at the Berlin Medical Society, when Dr. Hansemann, an assistant in Professor Virchow's Pathological Institute, as the mouthpiece of Professor Virchow himself, sharply criticised in detail Professor Behring's serum-therapeutics. He denied that the serum immunizes human beings, and declared that no sufficient

proof had been produced respecting its curative properties. Furthermore, Dr. Hansemann claimed that the effects of serum-treatment in many cases were dangerous to health and even to life. The statistics thus far obtainable of the results of the serum-treatment, he pronounced to be unreliable and often misleading.—*Newspaper Report.*

Antitoxin for New York.—It is announced that pending action of the New York Board of Estimate and Apportionment upon the application of the Board of Health for an appropriation of $30,000 to enable the Board to prepare the antitoxin of diphtheria, and carry on its scientific work, an anonymous philanthropist has furnished the means for the inoculation of a number of horses, sheep, goats, and dogs with diphtheria for the purpose of obtaining the antitoxin. It is proposed first to supply the Willard Parker and the North Brother Island Hospitals and then the general profession.

French Congress of Surgery.—The next French Congress of Surgery will be held October 21, 1895. The following subjects will be considered: 1. Surgery of the Lung (not including the pleura); 2. Early or Late Operative Intervention for Solutions of Continuity in Bones (not including the skull).

Correction.—Dr. Deaver wishes correction made of a typographic error in the title of his article in THE NEWS of December 1st. Instead of "Professor of Surgical Anatomy, etc.," read "Assistant Professor, etc."

The Colorado Climatologist and Denver Medical News is the name of a new journal published monthly at Denver, Col., and edited by Dr. C. Manly and J. N. Hall, together with a list of collaborators.

An Addendum to the article of Dr. MacPhail in the present number of THE NEWS, received too late for insertion, will appear in the issue of next week.

BOOKS AND PAMPHLETS RECEIVED.

Treatise on Diphtheria. By H. Bourges, M.D. Physician's Leisure Library. Detroit: George S. Davis, Publisher, 1893.

Asepsis in Minor Procedures. By Hunter Robb, M.D. Reprinted from the Maryland Medical Journal, 1894.

Notes on Gynecological Technique. By Hunter Robb, M.D. Reprinted from the New York Journal of Gynecology and Obstetrics, 1894.

Practical Application of the Principles of Sterilization. By Hunter Robb, M.D. Reprinted from the American Journal of Obstetrics, 1894.

An Operating Table. By Hunter Robb, M.D. Reprinted from the Johns Hopkins Hospital Bulletin, 1894.

Railway Spine. By Clark Bell, Esq. Pamphlet. New York, 1893.

Leukemia in Infants. By John Lovett Morse, A.M., M.D. Reprinted from the Boston Medical and Surgical Journal, 1894.

La Femme et la Bicyclette. Par le Dr. Just Championnière. Extrait de la Revue du Touring Club, Paris.

Chungking Hospital of the Methodist Episcopal Church. Second Annual Report, 1893. Kiukiang: The Central China Press.

De l'Agrandissement Momentané du Bassin. Rapport lu au Congres International des Sciences Médicales tenu à Rome, du 29 Mars au 5 Avril, 1894. Par Adolphe Pinard. Paris: G. Steinheil, 1894.

A Post-Graduate Lecture on Further Researches on the Causation of Anemia and the Blood-Changes Produced by Uric Acid. By A. Haig, M.A., and D.M. Oxon., F.R.C.P. Lond. Reprinted from the British Medical Journal, 1894.

The Human Element in Sex. Being a Medical Inquiry into the Relation of Sexual Physiology to Christian Morality. By Dr. Elizabeth Blackwell. New Edition. London: J. & A. Churchill, 1894.

A System of Genito-Urinary Diseases, Syphilology and Dermatology. By Various Authors. Edited by Prince A. Morrow, A.M., M.D. With illustrations. In three volumes. Vol. III. Dermatology. New York: D. Appleton & Co., 1894.

Some Observations on Gonorrhea in the Male. By W. F. Arnold, M.D. Reprinted from the Southern Practitioner, 1894.

Two Cases of Unclassified Infection. By W. F. Arnold, M.D. Reprinted from the Occidental Medical Times, 1894.

A Brief Consideration of the Cases of Appendicitis Occurring in the Practice of Professor William H. Carmalt. Being a Report to the Committee on Matters of Professional Interest of the Connecticut State Medical Society for 1894.

Differential Diagnosis of Alcoholic Coma from other forms of Coma, with Especial Reference to the Care of Persons found by the Police on the Streets in a Comatose or Semi-Comatose Condition. By Lewis D. Mason, M.D. Reprinted from the Quarterly Journal of Inebriety, 1894.

Some Observations on an Epidemic of Typhoid Fever. By L. D. Pierce Clark, M.D. Reprinted from the Medico-Surgical Bulletin, 1894.

Primary Carcinoma of the Gall-Bladder. By Delano Ames, M.D. Reprinted from the Johns Hopkins Hospital Bulletin, 1894.

Lectures on Rectal and Gastro-Intestinal Surgery, with Demonstrations. II. A Modification of Kraske's Method of Excision of the Rectum. III. A Tunnelled Fistulatome. IV. Gastro-Enterostomy made within Two Minutes without Suture, Ligature, or Forceps, with a Modifiction of the Murphy Button. By H. O. Walker, M.D. Reprinted from Mathews' Medical Quarterly, 1894.

A Report of Two Cases of Brain-Tumor, with Autopsies. By Irwin Neff, M.D. Reprinted from the American Journal of Insanity, 1894.

A Case of Primary Tuberculosis of the Female Bladder. Diagnosed and Treated by Howard Kelly's New Method of Direct Inspection with Large Endoscopes. By W. L. Burrage, M.D. Reprinted from the Boston Medical and Surgical Journal, 1894.

First Annual Report upon the Births, Marriages, Divorces, and Deaths in the State of Maine, for the Year ending December 31, 1892. Augusta: Burleigh & Flint, Printers to the State, 1894.

How to Cure the Profound Deafness of Chronic Aural Catarrh. By Robert Barclay, A.M., M.D. Reprinted from the Courier of Medicine.

Closure of the Ear by Growths of Bone; Purulent Inflammation of the Middle Ear; Pain, Deafness, etc.; a Fourth Case of the Writer's Successfully Treated by Osteotomy; with Cure. Description of Operation, Instruments, etc. By Robert Barclay, A.M., M.D. Reprinted from the Medical Review, 1894.

A Text-book of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., B.Sc. Fourth edition, enlarged and thoroughly revised. Philadelphia: Lea Brothers & Co., 1894.

What Dr. Browning Knows of Homeopathy. By Harvey Dale, M.D. Reprinted from the Medical Century.

Baron von Langenbeck, Surgeon-General of the German Army, Professor of Surgery in the University of Berlin. By Walter B. Platt, M.D. Reprinted from the Johns Hopkins Hospital Bulletin, 1894.

Some Account of Baron Larrey, Surgeon of the Armies of France under Napoleon the First. By Walter B. Platt, M.D., F.R.C.S. Reprinted from the Maryland Medical Journal, 1894.

Notes on the Anderson Process Compared with Ordinary Sand-Filtration. By E. Devonshire. London: Walter F. Morgan, 1894.

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ORIGINAL ARTICLES.

THE DIURETIC VALUE OF CALOMEL AND UNUSUAL TOLERANCE OF THIS DRUG IN A CASE OF CARDIAC AND RENAL DISEASE.

BY WILLIAM PEPPER, M.D., LL.D.,
OF PHILADELPHIA;
PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA.

IN the treatment of chronic diseases nothing is more gratifying than the possession of various remedies or plans of treatment by which one end may be obtained. Not only is this true of the treatment of different patients in whom various individual peculiarities or associated conditions may contra-indicate or render useless one or another remedy, but also and only to a slightly less extent is it true in the treatment of the same individual. There is, perhaps, no remedy that may be continued indefinitely with the same happy effect as attended its first exhibition; and in every chronic case conflicting conditions will from time to time arise that make it undesirable to continue a course of treatment in every way satisfactory so far as the immediate end and aim of that treatment is concerned, but undesirable on account of other effects produced. This is eminently true of the treatment of heart-disease. Valuable as is digitalis, and thoroughly acknowledged as is its preëminence as a cardiac stimulant and tonic, no one would deny the usefulness of other cardiac remedies—of strophanthus, of strychnin, of nitroglycerin and others—in their own proper sphere or in cases in which digitalis has lost its influence or is contra-indicated; and any work devoted to the study of these remedies of lesser value will prove useful in times of greatest need when the potent remedy has failed and other aid is imperatively demanded.

These preliminary remarks are pertinent to the question of the diuretic value of calomel. This drug is certainly of less general value as a diuretic, and more frequently entirely valueless than many others; but there are cases (and the one here to be briefly described proves this) in which the great efficiency of calomel justifies and repays the labor given to the investigation of this subordinate action of the drug in question.

The diuretic action of calomel is not a newly-discovered fact, though only of recent years has it engaged attention prominently. The indications governing its use for this purpose, and the precautions necessary to the fullest success of the treatment, are recent additions to medical knowledge, and are perhaps still but imperfectly established. Before discussing these points, however, it will be well to abstract the notes of a case that strikingly illustrates the salient features of the question.

G. W. H., aged thirty-nine years, had for some years been engaged as a post-trader at one of our frontier stations in Dakota. His family history does not bear on the case. During a number of years he was much exposed to the vicissitudes of a rigorous climate, and had once suffered a sharp attack of rheumatism, from which recovery was apparently perfect. Subsequently, in 1890, he was suddenly seized with great epigastric pain, and became jaundiced. The history of this attack leaves little doubt but that it was one of biliary colic. Under treatment and careful regimen he recovered, and remained well until December, 1892, when he began to suffer with epigastric pain, especially after eating, shortness of breath, and swelling of the feet. These symptoms persisted, and in February, 1893, he came to Philadelphia for treatment. During the journey eastward he was taken very ill at St. Paul, and was confined to bed two weeks with increased edema and a palpitating and severe aching pain in the back. On his entrance to the hospital we found him in the state described, and detected on examination a loud to-and-fro aortic murmur that completely obscured the heart-sounds. The vessels of the neck pulsated violently; the pulse was quick and collapsing. In short, the evidences of extreme aortic regurgitation were unmistakable. The urine was scanty, high-colored and dense; there was considerable albumin and numerous hyaline and slightly granular casts, with some blood-cells.

The man remained in the hospital from February until the middle of June, during which time his condition was much the same, though at times there was great improvement. The urine cleared up to such an extent that albumin disappeared entirely for a time, and casts could not be found. In addition to the general condition described there were frequent attacks of most alarming cardiac asthma and cyanosis, which after great difficulty proved controllable. In June he was so much better that he was enabled to return to his mother's home in Indiana, and during the summer he was quite comfortable. Indiscretions and neglect of treatment led to a relapse of his previous bad state, and he returned to Philadelphia in September. There were now, as before, great dyspnea, dropsy of the legs, palpitation, throbbing of the vessels, and frequent attacks of cardiac asthma and cyanosis. The urine was still

greatly lessened in quantity, and albumin and casts were abundant. No important changes were noted, excepting occasional improvement and subsequent relapses, until September 7, 1894, when he was suddenly taken with a severe chill, which lasted for a half-hour and was followed by copious sweating. No change in the heart-signs was detected on a careful physical examination, and the temperature regained the normal in thirty six hours. Subsequently a number of chills, with sudden elevation of temperature, occurred, and during several of these the patient suffered agonizing abdominal pains. The urine became loaded with albumin, then hematuria set in, the spleen became enlarged and tender, and the patient's general condition left no doubt as to the occurrence of embolism of the kidneys and spleen and of a general septic condition, probably from malignant endocarditis. The heart-signs remained unaltered. Finally wild delirium led on to coma, and the patient died October 25, 1894.

The treatment of this case was most instructive. In spite of the serious nature of the cardiac lesion and of the kidney-complication, the improvements under treatment were at times simply marvellous. During the early part of 1893 his condition was so serious that members of his family were summoned from Indiana, and his death was expected hourly. The urine was reduced to from eleven to fifteen ounces, and was loaded with albumin; the pulse was extremely feeble, and attacks of asthma and cyanosis followed each other in rapid succession; a large part of the time the patient was stuporous; yet, in spite of all this, improvement slowly manifested itself, and he recovered sufficiently to leave the hospital in June.

The most serious condition, the attacks of asthma and cyanosis, persisted in spite of every treatment until morphin and atropin were administered hypodermically. These remedies were at first used with great reluctance, on account of the diminished renal secretion and the albuminuria; but finally were forced upon us by the serious character of the asthmatic attacks. Subsequently morphin was used almost continuously, and often in large quantity. During the period from January 1st to March 14th, 1894, the total quantity of morphin administered hypodermically was 294 grains, or a daily average of about 3.5 grains. During February alone the quantity was 156 grains, or over 5.5 grains per day. The greatest quantity used (during one of the embolic attacks) was 18 grains; the least, 2.5 grains. At no time did the morphin in any way affect the secretion of urine noticeably; on the contrary it seemed that the general relief afforded rather tended to favor renal secretion. Sweating was always copious, but no distinct influence could be traced to the morphin, and with aortic regurgitation the symptom was not unexpected.

The most striking feature in the treatment of this case was the influence of calomel. This drug was used repeatedly with the most decided benefit. Under its influence there was invariably a great increase in the quantity of the urine secreted, and, in consequence of this, relief of dropsy and of the general symptoms. This effect was obtained only when the dose of calomel was a large one, and never lasted more than a week or ten days. Minute doses of calomel, gr. $\frac{1}{40}$, given hourly, failed entirely; larger doses were efficient in proportion to the dose, the greatest daily excretion, 140 fluidounces, occurring under the influence of three-grain doses administered every six hours. Scarcely less notable than the tolerance of the patient for morphin was his tolerance for calomel. During one period of three weeks he was given 210 grains of the drug, or about 10 grains daily, without the slightest indication of mercurialization, in spite of the fact that for weeks before smaller quantities had been administered almost continuously. The diuretic action is, perhaps, best illustrated by the following extracts from the notes:

		Fluidounces.	
March 10.	Quantity of urine in 24 hours,	15	
11.	" "	19	
12.	" "	30	
13.	" "	28	
14.	" "	29	
15.	" "	45	
16.	" "	45	Calomel gr. iij every 6 hours.
17.	" "	85	
18.	" "	137	
19.	" "	141	
20.	" "	126	
21.	" "	133	
22.	" "	106	
23.	" "	60	Calomel stopped.
24.	" "	43	
25.	" "	27	
July 10.	" "	19	
11.	" "	23	Calomel gr. $\frac{1}{6}$ every 2 hours.
12.	" "	28	
13.	" "	42	
14.	" "	53	Calomel gr. $\frac{1}{4}$ every 2 hours.
15.	" "	60	
16.	" "	92	
17.	" "	93	
18.	" "	84	
19.	" "	66	
20.	" "	44	
21.	" "	40	Calomel gr. $\frac{1}{2}$ every 2 hours.
22.	" "	70	
23.	" "	84	
24.	" "	90	
25.	" "	63	
26.	" "	41	
27.	" "	38	
28.	" "	41	
29.	" "	32	Calomel stopped.
Aug. 23.	" "	30	Calomel gr. $\frac{1}{10}$ hourly
24.	" "	20	" " $\frac{1}{20}$ "
25.	" "	25	" " $\frac{1}{5}$ "
26.	" "	35	" " $\frac{2}{5}$ "
27.	" "	44	" " $\frac{3}{5}$ "
28.	" "	47	" " $\frac{4}{5}$ "
29.	" "	62	" " j. "
30.	" "	81	
31.	" "	130	
Sept. 1.	" "	103	
2.	" "	106	
3.	" "	101	
4.	" "	98.5	

		Fluidounces.	
Sept.	5. Quantity of urine in 24 hours,	66	Calomel discontinued.
	6. " "	43	
	7. " "	31	
	8. " "	30	
	9. " "	20	
	10. " "	25	
	11. " "	20	

These tables show graphically the very powerful diuretic influence of the drug in this case, how under large doses the amount of urine increased immemediately, and maintained itself at a high figure for several days, only to fall as rapidly as it rose. It was equally evident that the drug was most active when dropsy was marked and when the bowels were kept in check. Rarely ever in this patient was there the least tendency to purgation. This is partly due to the large quantities of morphin administered; but from the comparative ease with which he could be purged with other remedies, this explanation does not suffice. There was undoubtedly a tendency rather to diuresis than to purgation under the influence of calomel in this patient. Whether the existenee of dropsy plays a part in this modified action is unsettled. Certainly it would appear that calomel increases diuresis in dropsical patients, by causing absorption of serum and rapid elimination by the kidneys. The recent cases of Palma are interesting in this connection. In six cases of cirrhosis of the liver, with ascites, large doses of calomel proved actively diuretic in four, the two negative results being in well-advanced cases. In one case of secondary carcinoma of the liver with ascites the drug acted most powerfully, and the ascites rapidly disappeared. In two cases (hypertrophic cirrhosis and carcinoma of the bile-ducts) without ascites, on the other hand, little or no diuretic influence was noted. The rapid loss of the diuretic power is rather peculiar to this drug, but was so constantly noted in the case reported, and has been so uniformly observed by others, that it seems an established fact. After a few days' interval the calomel acts as effectively as before. The dose should be not less than one grain every three hours, and the bowels should be controlled by opium. Constant use of antiseptic mouth-washes, no doubt, contributed to the avoidance of stomatitis in this case, and should never be neglected.

Other diuretics, such as diuretin, spartein, digitalis (this, however, was used almost continuously) were active to a degree, but far less efficient, and sometimes attended by unpleasant symptoms. Diuretin, in ten-grain doses, was the most active, but caused headache and vomiting and had to be discontinued. The patient died in apparently a septic state and with symptoms of heart-failure. The autopsy showed distorted and agglutinated aortic leaflets, without much thickening or calcification. Recent malignant endocarditis of the mitral and aortic valves was detected. The heart-cavities were filled with somewhat dense thrombi clinging to the trabeculæ and chordæ tendineæ. The kidneys presented the lesions of an old nephritis, together with recent congestion and hemorrhagic infarctions. The spleen was enlarged and contained fresh infarcts. The liver was large and fatty; the lungs congested posteriorly, and the other organs normal.

MYXEDEMA AND ITS DIFFERENTIAL DIAGNOSIS FROM CHRONIC NEPHRITIS.

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THERE are very few diseases that have excited more interest in the medical world within the past decade than myxedema, and there are very few discoveries in the domain of therapeutics that have been so brilliant as the treatment of this disease by thyroid extract. The history of the discovery of the remedy reads like a novel. The clinical features of the disease were carefully determined by a committee of the Clinical Society of London in 1889, but its origin remained unknown. The observations of surgeons, that a similar affection followed the removal of goiter, gave the first clue to the origin of the clinical symptoms. The brilliant researches of Horsley, by means of physiologic experiment, determined the function of the thyroid gland in maintaining the body-temperature and the nutrition of various parts of the system, and proved that the absence of the gland caused the symptoms of myxedema. Finally, the idea developed of transferring to the human body the thyroid glands of animals, either by direct transplantation (Horsley and Kocher) or by subcutaneous injection (Murray) or by ordinary administration by the mouth (Mackenzie), for the purpose of removing the symptoms of myxedema, which were due to the absence of this substance from the blood. The success of this method completed the history of the affection.

Those who have seen the very distressing physical and mental symptoms occurring in myxedema rapidly and progressively disappear under the administration of thyroid extract, until the patients are restored to perfect health, cannot but be impressed by the wonderful effect that the presence of this active principle in the blood has had. It has been my fortune to watch this transformation from a state of disease to a state of health in fourteen adults. The histories of several of these cases have been already published by myself[1] and by others.[2]

[1] Transactions of the Association of American Physicians, 1893, vol. viii, p. 361, three cases.

[2] Dr. George W. Crary, American Journal of the Medical

My object in reporting another case at this time is to call attention to certain features of myxedema that closely resemble the symptoms of chronic nephritis and to emphasize the importance of the distinction between these two diseases. This can hardly be exaggerated, for many of the cases of myxedema that are now cured had been considered cases of nephritis of an incurable nature, a mistake easily accounted for when we consider that the presence of albumin and of casts in the urine, together with an appearance of general edematous swelling of the body, is uniformly noticed in this disease. After recording the history of the following case an attempt will be made to indicate the chief points of differential diagnosis.

Fig. 1.

Fig. 2.

G. W. H., aged forty-five, had been perfectly well until the early part of 1892, when without any known cause he began to suffer from a gradually increasing swelling of the hands, face, nose, mouth, and tongue, which was accompanied by the appearance of a yellow pigmentation upon the hands and face and a decided thinning of the hair. This condition gradually increased during the summer, and he found that he was unable to perspire, no matter how hot the weather. During the autumn, in addition to the symptoms mentioned, he noticed that his teeth were loose, that the gums were sore, bled quite frequently, and seemed to be soft; that the swelling of the mouth and tongue had become so great as to materially change the character of his voice, making talking monotonous and decidedly slower; and that the swelling also interfered with breathing easily through the nose, so that he kept his mouth open, and at times had some difficulty in swallowing. As winter came on he suffered more from the cold than he had ever done previously. The swelling had by this time gradually extended over the entire body, giving him the appearance of being rather fleshy, so that his tailor had to let out his clothing an inch-and-a-half about the waist. The appearance of his face during this time had progressively altered, and presented certain peculiarities; the hair of the head had become coarse and rather thin; the hair of his moustache was also coarser than formerly and had become bristly, so that it could not be kept smooth as formerly; the skin of the entire face was thickened and pigmented; this was particularly noticeable about the forehead, where deep wrinkles appeared, and around the eyes (which could hardly be opened to their full extent), and about the mouth, where the lips were thick and heavy; there was a peculiar elevation of the external corner of the eyebrows in the effort to open the eyes; and a thickening of the face at the side of the nose was very perceptible. His extremities were also swollen and pigmented; the skin all over the body was dry and scaly. His friends had noticed the slowness of his speech and the peculiar thickness of utterance. Many of these characters are well shown in his photograph (Fig. 1), which was taken in May, 1894.

The diagnosis of myxedema was made by his physician in San Francisco, in September, 1893, and the thyroid treatment had been begun about that time and kept up until May, 1894, when I first saw him. Whether the preparation used had been defective or imperfectly prepared I do not know;

Sciences, April, 1894, two cases: also, Dr. S. J. Meltzer, N. Y. Medicin. Monatschr., April, 1894, one case.

but his improvement had been slow, though perceptible, during the winter. When I saw him in May I observed, in addition to the symptoms and appearance already noticed, very marked supraclavicular swellings, slightly subnormal temperature, a marked slowness mentally, attended by a tendency at times to feelings of depression and the characteristic speech of myxedema. He had not had hallucinations, and the mental hebetude was less than I have seen in other cases. Examination of the urine showed the presence of small amounts of albumin and a few large and small hyaline casts; his pulse was slow—60—and rather hard and irregular. He felt himself unfitted to do business by reason of his condition, and though not suffering any pain, was decidedly uncomfortable and distressed at his state. He was placed immediately upon the 5-grain tabloids of thyroid extract prepared by Burroughs, Welcome & Co., of London, these having proved to be the most active and least disagreeable of all the preparations of thyroid which I have employed. He was given three a day, but this number caused a rise of temperature and a rapid action of the heart, and hence the dose was reduced to two daily. During the following month his progress was very rapid, and the change in his appearance was extraordinary. All the symptoms gradually disappeared, excepting the pigmentation of the face and hands; the swelling subsided everywhere, so that at the end of the month he was wearing a number fifteen collar instead of a seventeen, and all his clothing was too loose; his facial expression had altered greatly for the better, and was almost like that shown in Fig. 2, a photograph taken in September, 1894. This photograph shows the remarkable change in the general appearance. There has been a corresponding change in his general feelings and in his mental capacity; he is now able to do business of an active kind with his usual ability. His voice has become natural, he has no disturbance in swallowing or breathing, and in fact, is in his usual state of health. Within a month of the beginning of treatment the albumin and casts had entirely disappeared from the urine, and there was present no evidence of any disease of the kidneys. The only unfavorable symptom that has been noticed during the course of treatment has been a marked effect of the thyroid extract upon his heart; the pulse has been persistently rapid and irregular, and he has suffered from a sense of weight and distress in the region of the heart and dyspnea on any exertion. This had never been present until the thyroid extract was used. It increased to a point of great distress when the thyroid was increased beyond fifteen grains daily, and it became less when the thyroid was stopped. He finds it necessary to take three grains of the extract, however, as, if he stops for more than two weeks, his symptoms begin to return. The distress did not appear to be very much affected by heart-stimulants and by strychnin, which were administered from time to time with a view of correcting this depressant action of the remedy. It is, of course, necessary for him to continue indefinitely the use of the thyroid extract, as this supplies to his blood an element, the absence of which produces all his symptoms.

The general appearance of patients suffering from myxedema—their cachectic look, yellowish color, and swollen faces and extremities—suggests to the ordinary observer a condition of nephritis. When the history of gastric distress and indigestion, of general malaise and fatigue on slight exertion, of headaches and mental incapacity, of insomnia, and of general edema is heard, the first suspicion is likely to be strengthened. And when the examination of the urine shows albumin and hyaline casts it seems as if the diagnosis of chronic nephritis was perfectly certain. I have made this mistake myself in two cases, and have known it to be made by some of the most accurate diagnosticians in this country before myxedema became as familiar as it is at present. Yet unless a physician has examined and studied patients suffering from myxedema he may be quite liable to this error, and hence I desire to call particular attention to the points of differential diagnosis between myxedema and chronic nephritis.

(To be concluded.)

TREATMENT OF TYPHOID FEVER.[1]

BY CHARLES W. DULLES, M.D.,
OF PHILADELPHIA.

THE recent appearance of articles on the treatment of typhoid fever advocating principles similar to those that have impressed themselves upon me in the course of my practice prompts me to present the views on this subject that I have come to hold after nearly twenty years of observation and experience. Though these impressions differ in some ways from those that are strongly urged by certain writers on typhoid fever, I present them with confidence, because I see in various places that opinions I once held with hesitation, as unorthodox and somewhat hazardous, are held by others, independently drawing conclusions from their own experience.

My experience in the treatment of typhoid fever has ranged from cases so mild as to leave some doubt in regard to the diagnosis to cases so severe as to be marked by hemorrhages from the bowels, kidneys, and lungs, with delirium and collapse; so that I have had sufficient opportunity to test the teachings of others and the deductions from my own observations since my student days.

The principles of the treatment of typhoid fever may be summarized, I think, as consisting in: first, careful maintenance of the natural processes of excretion; second, the judicious administration of food—finding a mean between starvation and overloading the alimentary canal; third, moderate regulation of temperature; and, fourth, medication

[1] Read before the College of Physicians of Philadelphia, November 7, 1894.

reduced to the lowest possible point and shaped to meet definite indications. Nothing in these principles is novel; but I do not think the text-books put them as forcibly as might be done with advantage to students and young practitioners.

In regard to the first matter, I would say that the views in regard to auto-intoxication, expressed by Bouchard at the International Medical Congress held at Geneva, in 1877, impressed me at that time as being of very wide applicability. He applied them especially to typhoid fever, in which disease, if ever, we have an accumulation in the intestinal canal of material which taxes to the utmost the powers of elimination possessed by the patient. Here, if ever, we need to see that no interference with the process of excretion takes place, but that, on the other hand, aid shall be given to the excretory function of the lungs, the skin, the kidneys, and the bowels. For the lungs, we need fresh air, with careful avoidance of undue chilling; for the skin, we need, again, abundance of fresh air, judicious management of bed and body coverings, and the application to the skin of some form of hydrotherapy. To the kidneys unremitting attention should be given in every case of typhoid fever. The urine should be examined often for albumin and for tube-casts; and in every case the quantity of liquid drunk by the patient and the amount of urine passed should be known. I believe that much of the delirium of typhoid fever might be avoided if the kidneys were considered as carefully as the intestines. During the entire progress of a bad case the tendency of the urine to hyperacidity should be combated by the free use of water and dilute alkaline solutions. From my experience I should say that the best form of the latter is the solution of ammonium acetate with the addition of potassium acetate.[1] I have found it desirable, also, in these cases to induce patients to drink water freely, by giving it to them in forms which are agreeable to sick persons as well as to well ones: for example, carbonated waters, or plain water slightly acidulated with lemon-juice, or weak tea, hot or cold, flavored with a little lemon-juice and sugar, in the manner so widely known as "iced tea."

Of the various modes of elimination, I have chosen to refer last to that from the bowels, because it is in some respects the most important and in some respects the most neglected. My own observation leads me to think that too great fear is sometimes felt for the diarrhea of typhoid fever. This diarrhea is the result of Nature's efforts to get rid of material that is injurious to the patient; and I believe, on the one hand, it would be less likely to occur if the physician secured proper evacuations from the bowels before the diarrhea began, and, on the other hand, that lives are sometimes sacrificed in a desire to check it. This endeavor seems to overlook the indications furnished by the natural course of a case of typhoid fever, as well as the principle that the contents of foul cavities in the body—whether these be natural cavities, like the pleural cavity or the peritoneal cavity, or unnatural cavities, like those of abscesses—shall be removed. I think it important at the outset of a case of typhoid fever to secure a thorough clearing out of the entire intestinal canal—not merely a single purging, but several moderate ones, which shall quite empty the whole tract. After this I believe that the bowels should be relieved with mild saline laxatives, like Rochelle salts, or with small and repeated doses of calomel, at least every third day, unless the case is one in which Nature provides this form of relief. As for astringents, I think the occasions for their use are extremely few. This is especially true of astringents administered by the mouth. Astringents administered by rectal intubation, I think, are of little more value than simple lavements of the sort now called "enteroclysis," but which the students of Monti became familiar with some twenty years ago in Vienna, where it was called "irrigation of the colon." This I have practised on suitable occasions for seventeen years. Such irrigations are useful in several ways—for cleansing, for cooling, for assuaging thirst—but at this time I do not care to discuss details. The sum of what I believe in regard to elimination from the bowels is that it should be facilitated, and that, instead of attempting to check it, the object should be to regulate what Nature may be doing in an irritating and irregular fashion.

The second important point in the treatment of typhoid fever is, I think, the judicious administration of food. It goes naturally with what has been said in regard to checking Nature's efforts at elimination, to say that Nature should not be harassed by having burdens laid upon a weakened and irritable intestinal canal. The teachings of physiology and of ordinary common sense are opposed to the introduction into the alimentary canal of a sick person of more food than he can either appropriate or cast out. A healthy person can dispose of a large excess of unneeded ingesta, but a patient with typhoid fever cannot. I am sure I have seen patients killed and others nearly killed by relentless feeding, prac-

[1] To make a preparation of ammonium acetate and potassium acetate that is not very disagreeable, I order a mixture containing one-hundred-and-sixty grains of potassium acetate in three ounces of the solution of ammonium acetate sweetened with one ounce of syrup of lemon. To this I add ten grains of quinin sulphate, and order the mixture to be filtered by the druggist. The dose is a dessertspoonful, taken with a wineglassful of water, about four times a day. The quinin substitutes for the mawkish taste of the potassium a distinctly bitter taste, and that part of it (which is considerable) that is not dissolved in the mixture is filtered out, in order to make a better-looking preparation. To each dose I sometimes recommend the addition of a few drops of lemon-juice.

tised by physicians who have, without judgment, followed the teachings of writers who advocate what is called "regular" feeding, and especially with milk-food, in typhoid fever. Forcing patients to take measured quantities of milk at short intervals sometimes results in a diarrhea which shows that Nature repudiates the imposition—the stools resembling those of sick, milk-fed infants. At other times, when milk is given, the milk-water and salts are absorbed while the casein remains undigested and accumulates in the lower bowel until a condition of coprostasis is set up, in which the patient is subjected to the dangers of total obstruction to elimination from the bowels and to horrible pains and violence when the mass of solid feces is finally expelled by an act of Nature or by the stimulation of cathartics.

An error of another sort is committed when certain extracts of beef are administered with the idea that they are highly nutritious. To support this belief there are, I think, only an untenable theory and deductions which the facts do not warrant. I feel sure that the advantage to patients of preparations such as Valentine's meat-juice is chiefly that they are so costly that not much is likely to be given, and that they contain so little tissue-building material that they do not oppress the digestion or overload the intestinal canal. Such food probably contains, bulk for bulk, less tissue-building material than is found in the white of a chicken's egg, and is equally innocent. Beef-tea is now generally recognized as a substance which is useful for the same reason, namely, that it does not burden the intestinal canal, while it gives both patient and friends a sense of security which is very desirable in all medical cases. This suggests what I believe is one of the most important points in the management of typhoid-fever cases, namely, that they should be given as little food as possible—not as much as can be forced down them.

My own rule—which I have found has been that of others—in almost all cases of sickness, in young and old, is to say that patients may eat when they wish to, and go without eating when they have no desire for food. I let them drink all they want to, and give them food which shall resemble as little as possible those trying things that remind a patient of his sickness. I give a list of permissible foods, and tell the nurse or members of the family to get up a little meal for a patient who is conscious enough to appreciate it. I sanction the use of the albumin-water already referred to (cool water in which the white of an egg has been stirred up, with the addition of some pleasant flavor), and of almost all clear soups as they are prepared for well persons. I give milk, plain or peptonized, or made more palatable and less constipating by the addition to it of some good preparation of cocoa. I allow tea and coffee, with plenty of cream and milk, which often do good, and which I have never known to do harm if used with ordinary judgment. I have no fear of eggs, and give them whenever a patient with typhoid fever or any other fever wishes them, either soft-boiled or shirred.

Besides this, if I have a patient whose bowels are acting nicely I give custards and simple corn-starch preparations. A patient who can digest anything can digest these foods; and a patient who cannot digest anything will not want anything to eat; and, according to my views, he will require nothing but albumin-water and thin soups.

When we recall, on the one hand, the fact that persons making more or less constant exertions have gone for weeks without food and without serious impairment to their health, and, on the other hand, that fevered intestines are in no condition to do much in the way of digestion, and are capable of taking up only foods which contain finely divided or soluble hydrocarbonaceous substances and albuminoids that make their way through the intestinal walls without digestion, we can, I think, understand that not much food is needed to keep fever-patients from starving, and that this food should be of the very simplest character.

Further, when we reflect that perforation of the bowels is most likely to occur when the bowels are obstructed and distended with gas, and that this accident does not result from the unimpeded movement of soft fecal matter, but that the intestines are rather advantaged by the internal drainage which such a process secures, we can understand that, while the bowels are not constipated but moving freely, there is no need to restrict a patient to food like milk, which is almost entirely composed of water, and which has but little residue. Because I think this is true, I believe that typhoid-fever patients who have reached the stage in which they feel an inclination for food may be allowed moderate quantities of any soft food, like thick soups (digestible, of course), good fresh fish, and the soft part of oysters, with occasionally sweet-bread or beef's tongue, with eggs, milk and cream. Of vegetables, I think baked or mashed potatoes may be used, and rice and corn-starch preparations, with thoroughly boiled oatmeal and such things as spinach or well-boiled onions and very moderate quantities of toasted bread thoroughly softened with boiling hot water and seasoned, as well as soft milk-toast. For relishes, cocoa, tea and coffee may be used, and, for desserts, jellies, ice-cream, and orange-juice in moderate quantities.

The third point in regard to the treatment of typhoid fever about which I wish to speak is the regulation of the temperature. Views on this sub-

ject have undergone considerable modifications within the time covered by my own experience. At one time the greatest stress was laid upon lowering the temperature of fever-patients. This plan has given way to a more rational one, that recognizes a principle known as long ago as the time of Asclepiades, two thousand years ago—namely, that fever may of itself be a curative process or the mark of a process which is useful. I think the majority of thoughtful medical men are entirely satisfied if a patient presents the general appearance of doing well, even though the temperature be several degrees above 100° Fahrenheit. If a patient is really suffering from high temperature, I think the first attempt to reduce it should consist in having removed the needless bed-covers with which fever patients are often burdened, as the air constitutes one of the best and safest means of properly reducing the temperature. After this, I have found that sponging with cool water, especially upon the abdomen, is pleasant to the patient, and I think it has a distinctly beneficial influence upon the temperature and the inflammation within the abdominal cavity. In some cases I advise that a few light layers of muslin or gauze such as surgeons use be laid upon the abdomen and moistened at times with ice-water gently squeezed from cotton or a sponge. In a few cases I have found it convenient to have such light cloths "ironed" occasionally with a small piece of ice.

My experience with drugs given to reduce temperature by means of their physiologic action has led me to abandon their use; not because I have ever seen them do harm, but because I do not believe they really do good, and I think it better to let the temperature alone as long as it is in bounds, and, if it requires repressing, to effect this with external applications of cool air and cool water. Since I have adopted this plan I have found it to work according to the expression attributed to Asclepiades, namely, "*cito, tuto et jucunde.*"

This suggests the last of the points which I have mentioned as constituting, in my opinion, those most important in the treatment of typhoid fever, namely, that which concerns medication. I am not peculiar in believing that medication should be reduced to the lowest point and that it should be shaped to meet definite indications. As I have already said, I think the bowels should be well opened at the beginning of a case believed to be one of typhoid fever, and that when the diagnosis is established they should be kept open. I have also suggested the use of mild diuretics, the tendency of which is to reduce the acidity of the urine and to increase the solubility of its solid contents. With these procedures, intended to aid elimination, I think it is useful to administer what are known as intestinal antiseptics. These appear to do something which is not yet explained by any laboratory-observations; and, from the time when turpentine was first used until the present time, when it is the rival of modern chemic inventions, intestinal antiseptics have seemed to be of distinct value in the treatment of typhoid fever; for, in addition to their purifying action in the bowel, they appear to exercise a beneficial influence upon the nervous system. Turpentine and its congeners have tonic and stimulating properties in addition to their antiseptic influence, and drugs like salol probably control pain, not only by acting upon the fluids circulating in the bloodvessels and lymphatics, but also by directly influencing the brain and nervous system. I think turpentine and salol are two valuable drugs, if given in moderate quantities and with care that the turpentine shall not be pushed to the point of producing strangury, and that the salol shall not be pushed to the point of producing carbolic-acid intoxication. In certain conditions I think morphin may be used, and should be used, without hesitation. But these circumstances are rare. The bromids (and I prefer sodium bromid) are useful as occasional remedies. So is sulfonal, and so is trional, to control restlessness and to secure sleep, in the absence of pain, on which they have no effect whatever. Phenacetin is also useful with a view to controlling nervous irritability, bearing in mind its effect in producing perspiration. I believe that at times pepsin-solutions, with dilute hydrochloric acid added, are useful as an aid to digestion and the natural processes in the intestines, and not as medicine.

My view in regard to alcoholic stimulants is that they are seldom required, and never in the large quantities sometimes prescribed. There are times when a dose of a teaspoonful of whiskey in a little hot water, repeated every ten minutes, may tide over a short period of weakness or collapse; but I think the administration of such quantities as eight or sixteen fluidounces of whiskey in twenty-four hours is not good practice; while I believe that hot tea or coffee, without cream or milk, may be used instead of the smaller quantities of alcohol just mentioned.

I have not attempted to describe in detail the mode of treating typhoid fever, but only to state the general principles which impress themselves upon me as correct after a reasonable experience. These are, as stated: 1, careful maintenance of the natural processes of excretion; 2, the judicious administration of food; 3, moderate regulation of temperature; 4, medication reduced to the lowest possible point. My object in discussing the subject at this time is not so much to present my own opinions as to put them in evidence in order to strengthen the hands of those who have recently

contended for what I believe is the rational mode of treating this very serious disease.

THE NATURE AND MANAGEMENT OF FUNCTIONAL GASTRIC DISORDERS.[1]

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IT is said that things are known when understood and understood when interpreted. Concerning the familiar symptom-complex embraced under the term functional gastric disturbances there is much lack of agreement in interpretation, and, therefore, it is concluded that there exists disagreement as to the nature of the pathology in question.

A recent American writer has arrayed these symptoms to explain them as the result of subacute gastritis. One Continental observer attributes the phenomena to an on-coming gastrectasis, and another easily divides the group into a series of special stomach-diseases in which hyperchlorhydria stands forth prominently. Ewald, Rosenheim, and Boas separate the disturbances into irritative forms and depressive forms, and then assign to each abnormalities in motion, secretion or sensation.

Unquestionably there is functional disturbance of the organ in subacute gastritis, and the same holds true of beginning gastrectasis; also there are types that are sufficiently distinct to admit of their description as varieties, and an analysis of these varieties, after the fashion of Ewald and others, leads to a clearer understanding of the nature of gastric neuroses; and yet it would appear as though the subject were open to still another interpretation of which in part it is the purpose of this brief paper to speak.

In the first place, let it be said that the functional gastric disorder is very rarely a primary trouble. In reviewing the records of a series, including between five hundred and six hundred cases of supposed stomach-disease, in which at least one complete examination of the gastric contents was made, in not one instance can it be said that functional trouble indubitably arose from a disturbance that was primarily gastric.

This is not impeaching the possibility of such occurrence. It can be readily seen how overtaxing the stomach alone might eventually induce exhaustion and a consequent seated neurosis. Indeed, perhaps nothing is more important, as a contributing factor, than gluttony; but in point of fact one rarely finds gluttony the essential cause of the neurosis. Something has gone before, or something accompanies the pernicious habit of over-indulgence, and as a joint result we discover the neurosis. It is remarkable that the stomach will tolerate patiently so many insults of a dietetic character, both in food and in drink. True, a subacute gastritis may result, but under a diminished appetite it soon subsides, and no functional disorder follows.

Of course, this statement may be met by quoting the freely-admitted fact that it is the everyday experience for physicians to have patients complain of persistent gastric symptoms resulting from injudicious eating. Quite true. A failing gastric function is usually first made manifest by the overtaxing of that function; but even if overtaxed, that function rarely, if ever, remains weak and perverted from the effect of the indiscretion alone. On the contrary, a healthy organism, after a short period of reaction, congestion—if you please, of subacute gastritis—resumes its customary pace. (Note Beaumont's oft-mentioned observations on St. Martin.)

What, then, are the influences that invite the appearance of the persistent functional disorders of the stomach? The question is one that should arise in the physician's mind with every case that is presented. This paper is intended as a protest that the question is not more frequently raised.

In ratio to one's ability to hunt down and remove the causal factor will be his success in relieving the neurosis, failure in which has come to be an opprobrium. The stomach, like a mirror, reflects pretty nearly every influence to which the organism is subjected. Irritation of the brain, the cord, the testicle, the uterus, the kidney, or the liver, results in anorexia, or perhaps vomiting. Grief, joy, worry, and pain, lead to similar results. When there is toxemia from constipation, or renal or cutaneous insufficiency, or the infections, it is the stomach that raises the alarm. In the cerebral anemia of naupathia, or of a fainting turn, and in the cerebral congestion of sunstroke, the gastric are in the tumultuous front of the anarchistic functions.

One need not go far for explanation of these phenomena. Perhaps no portion of the organism has so complex a sympathetic nerve-supply as the stomach. Robert Ewald's extraordinary exposition of this truth, in his brother's masterly book on diseases of the stomach, is entitled to mention on all occasions. Just why Nature has provided this curious arrangement it would be interesting, but at this time extraneous, to discuss. Enough to say that it exists. Now, of those suffering from these various irritations, any of which, either through toxemia or reflex disturbances, may lead to the gastric symptoms, and if the stomach-contents were examined there would be found no evidence of subacute gastritis, none of the "ropy mucus" that inexperienced men so much talk and write about, and which those who have largely studied gastric contents usually fail to discover; but there would be found testimony that

[1] Read before the New York Academy of Medicine, May 17, 1894.

there had occurred a serious derangement in gastric innervation, exhibiting itself to some extent as excitement, to some extent as depression, and in some instances it is impracticable to say that either of these states predominates.

An attempt at the segregation or the classification of these gastric phenomena appears to me as usually inexpedient, if not unsuccessful. They are mixed symptoms resulting from remote disturbances. Undoubtedly a stomach having such faulty and spasmodic innervation would now resent bad diet, or perhaps any other kind of diet, and yet the trouble is not one primarily of the stomach. It is not that the face of the mirror is irregular, but it is because of the distorted figures reflected from it that the picture is hideous.

If these statements are facts, and if they be applied as guides in traversing the maze of functional disorders of the stomach, it would seem as though they would help us to rightly understand the real nature of those affections.

Let any case of undoubted functional gastric disease be put under examination. There may be eructations of gas or sour fluid (that means insufficiency of the cardia, as a rule); there may be an excess of free HCl (that means a faulty inhibition of the peptic glands, probably); there may be uneasiness amounting to gastralgia (that means undue irritation or hyperesthia, one or both). Now, instead of resting content with this diagnosis, admirable and advanced though it may be, and making for himself limitation in therapeutics that are directed toward immediate relief and really nothing else, no matter how successfully they are applied, the physician is asked to look further, having before him the conviction that there is operating an unthought-of cause that has diverted nervous energy from its ordinary courses and is the present malefactor.

Where will the trouble be found? In the search it is convenient to examine for the possible presence of: *First*, some centric or eccentric nerve-irritation acting reflexly; and, *second*, some toxemia. The nerve-irritation may prove to be some central structural disease or persistent circulatory disturbance, or it may follow excessive mental strain, as seen in actors, school-teachers, and those suffering constant interruptions, or it may be, and in fact often is, accounted for by defects in the organs of special sense, particularly the eyes.

One cannot be unmindful of the doubts that this last statement may arouse in the minds of listeners who have given the question of eye-strain large attention, for it is well-known that observers differ widely as to the importance of ocular defects in the development of functional disorders. I have no contention to make, but a faithful record of personal experience to report.

To leave for the present the matter of the brain and its nerves, it will be found that irritation of the cord, either directly, as from pressure in lordosis, scoliosis, and other sources, or interference with innervation, as in tabes or focal myelitis, or indirectly, as in irritation from hysterical spine, is a common source of gastric disorder.

Further than this, the mischief may be lurking in the genito-urinary apparatus. Not alone the uterus and ovaries, but the urethra, the meatus, and the prepuce should be critically examined. A frequent and generally overlooked cause of the disturbance exists in ureteritis, to which attention has been especially directed by Dr. Howard Kelly and by Dr. Matthew D. Mann. Wandering and movable kidney and renal irritation from hyperlithuria belong to the list. It is not intended to catalogue all the known reflex causes of functional disturbance, as the subject is too trite, and perhaps the array is already redundant.

There now remains to be considered the influence of toxemia in the production of gastric disturbances. One of the most common and most important forms results from defects of the kidneys, either dependent upon nephritis or upon functional inadequacy of the organs, a subject fully discussed by Sir Andrew Clark, Casper A. Peyer, and others abroad, and by Rochester and Allen Jones in this country. So alcohol, tobacco, coffee, and other substances may induce digestive disturbance indirectly through the blood and nervous system. Malaria, gout, and tuberculosis often offend in the same manner.

Not to be prolix, there is another potent, and, it is believed, hitherto an undescribed cause of functional gastric disorder doubtless operating through the medium of the blood. Reference is had to the very late phases of syphilis. The patients usually give a history of an ancient infection, with presumably the usual routine of medication. In several there is a history of healthy children. As a rule, there is an absence of the ordinary tertiary lesions, although the skin is usually muddy, and in some there exists a moderate anemia. In the series already mentioned, representing over five hundred cases in which the stomach was minutely studied, there were twelve whose gastric symptoms depended upon late syphilitic toxemia. Only one of these, a gentleman residing in this city, improved upon ordinary treatment. Fully one-half failed to improve after such treatment was faithfully tried, but all of them made immediate, prompt, and lasting improvement when given ascending doses of potassium iodid, and with one exception all have been discharged on no other than syphilitic treatment, the other measures having been abandoned. It is interesting to note that in these cases there occurred but little disturbance in secretion. The complaint

was of sensory and motor symptoms—gas-eructations, nausea, distress after eating, and frequently more or less gastralgia. This account has been somewhat amplified, because the conclusions are believed to be new.

In reviewing the multitudinous causes of functional gastric disorders it would be interesting to analyze with a view of determining whether or not given irritations, particular reflexes, and special forms of toxemia produce uniform and distinct varieties of gastric neuroses. So far as this matter has been studied the answer must be in the main no. However, there is ground for believing that in a few instances with a pronounced given reflex irritation there will probably result functional failure along certain lines. An example may be given, but as a preliminary the belief should be stated that long-continued functional perversion leads invariably to structural change.

Now as to the example:

Your distinguished fellow, Dr. Max Einhorn, in 1893 first described, under the title "Achylia Gastrica," a most important condition of the stomach, that was later described by Dr. Allen Jones as "Gastric Anacidity." Now, of the cases reported by the latter, together with several others included in the series already mentioned, the majority have been examined as to the existence of eye-strain. Without a single exception in the cases thus investigated there has been found to exist a definite, and relatively speaking, uniform ocular defect, viz.: unsymmetrical astigmatism of high degree, varying from one to five diopters. It should be noted that there was an absence of the slight astigmatic faults, such as are reported to be responsible for so much headache. Also, that the present ametropia was irregular, such as myopia in one eye and hyperopia in the other, besides a lack of correspondence in the axes of astigmatism. Obviously no claim is made that these ocular defects are generally followed by "Achylia Gastrica;" but it is true that in every case of this form of gastric trouble in which an eye-examination was made ametropia of the forms described was found present.

Letting repose the eye-question and asking a moment's attention to the stomach-disease under consideration, the opinion is ventured that in "Achylia Gastrica" we have to do with an affection that in the beginning is often a mere functional disturbance. The long-continued inhibition of the peptic glands is succeeded by atrophy, and what is at first an amenable condition terminates in structural change and is persistent. The history of the patient is not one of acute or chronic gastritis, but one of long and troublesome functional derangement. These cases have been followed through the very transitional stages and, as it were, taken *in flagrante delicto*. Here seems to be evidence of the truth of the assertion that long-continued functional disturbance leads to change in structure.

The etiology of most cases of gastrectasis is involved in the history of functional insufficiency. Many believe that peptic ulcer has often a neuropathic origin. It is highly probable, then, that sometimes, as a result of functional disturbance, chronic gastritis may be established. The successful management of functional disorders of the stomach, therefore, includes not only an intelligent special treatment of this condition and correction of the diet, as indicated by the precise study of the stomach and its contents, but also the discovery and removal of the cause, and that cause is frequently remote from the organ in question.

To recapitulate it is held that:

1. Functional gastric disorders generally arise from influences outside the stomach.

2. Those causes are usually to be found in some reflex irritation or some toxemia.

3. Amongst the latter syphilis occasionally has a place that apparently has passed unnoticed.

4. Structural changes in the stomach are not so much the causes as they are the results of functional disorders.

5. The successful treatment of these affections must include the removal of the often unsuspected exciting cause.

THE TREATMNT OF TUBERCULOSIS WITH YEAST-NUCLEIN.

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I closed my paper on "The Nucleins and Nuclein-therapy," read before the Michigan State Medical Society last May, with the following paragraph: "I have been using nuclein in the treatment of tuberculosis in man since the 1st of May, 1893. At first I employed only yeast-nuclein, but now now I am using spleen-nuclein in some cases. When sufficient evidence has been obtained, either to reject or to recommend the treatment, the results will be communicated to the profession. I may say, however, that only in initial cases may we expect any benefit, and even in regard to these I must have more abundant material and a longer experience before I can speak with any certainty."

Since the reading of the paper mentioned several articles on nuclein and nucleinic acid have appeared, and Professor Kossel, of the University of Berlin, has applied for and has received in Germany a patent on a process of manufacturing nucleinic acid.

In this paper I shall deal only with my own observations and experiments, and, in order that my statements may be properly connected with those

that I have previously made, I repeat the most important conclusions that I have reached and stated in preceding papers. These are as follows:

1. The nucleins and nucleinic acid are powerful germicides. This was first shown in a paper by McClintock, Novy, and myself, published in THE MEDICAL NEWS of May 20, 1893. Additional facts on this point were given in my address before the Medical Section of the Pan-American Medical Congress and published in THE MEDICAL NEWS of October 7, 1893. This work was confirmed in a paper published by Kossel in February, 1894.

2. The germicidal constituent of the serum of blood is a nuclein. This was shown in a paper by McClintock and myself, read at the Pan-American Congress and published in THE MEDICAL NEWS of December 25, 1893.

3. Rabbits and guinea-pigs may be protected against virulent cultures of the diplococcus of pneumonia by previous treatment with hypodermic injections of a solution of yeast-nuclein.

4. The immunity thus secured is not due to the action of the nuclein as a germicide directly.

5. The process of securing this immunity is an educational one, and most probably depends upon the stimulating effect of the nuclein upon some organ whose function it is to protect the body against bacterial invasion.

6. The longer the nuclein-injections are continued and the more frequently they are administered, the more complete is the immunity secured.

7. In order to obtain this immunity, the inoculation with the germ must follow soon after the last treatment with the nuclein.

8. Attempts to render guinea-pigs immune to tuberculosis by the methods so far employed show that previous treatments with nuclein retard, but in the majority of cases do not prevent, the development of tuberculosis from subsequent inoculations.

9. Attempts to arrest tuberculosis already developed in guinea-pigs, by treatment with solutions of yeast-nuclein, have been followed by varying results, depending upon the virulence of the germs used in inducing the disease, the stage of the disease when the treatment is begun, and the susceptibility of the animal, especially as influenced by age. Upon this point we have bestowed much time and labor, but the results have been so conflicting that I am not yet prepared to formulate any positive conclusions. I have in my note-book details of experiments upon more than one-hundred pigs, and I feel that I am as little able to speak positively on the subject as I was when the experiments were begun.

10. I have used nuclein with benefit in the treatment of indolent ulcer, tonsillitis, and streptococcus diphtheria.

The preceding condensed statements bring us to the publication of my last paper on the nucleins, *i. e.*, the one read before the Michigan State Medical Society and published in the *Transactions* for 1894.

Taking up the work at this point, I wish to detail work done upon two other points before I proceed to discuss the results which I have obtained in the treatment of tuberculosis in man with yeast-nuclein.

IMMUNIZING RABBITS TO TUBERCULOSIS.

On March 19, 1894, I inoculated rabbits 1, 2, 3, 4, 5, 6, *a* and *b*, with a virulent culture of the bacillus. Animals from 1 to 6 inclusive had had previous treatments with a one per cent. solution of yeast nucleinic acid, as follows:

March	9,	10,	13,	14,	15,	16,	17,	19
Amt. of sol. in c.c.	0.3	0.5	0.6	0.7	1	1	1	1

a and *b* had had no nuclein. All of the animals were half-grown, and weighed respectively: No. 1, 714 grams; No. 2, 724; No. 3, 740; No. 4, 729; No. 5, 647; No. 6, 614; *a*, 709; *b*, 705. On July 6, 1894, I killed No. 6, *a* and *b*. No. 6 weighed at this time 1557. I found a nodule the size of a pea at the point of inoculation. In all other respects this animal was normal. I could find no bacilli in the nodule, which was rubbed up with beef-tea and injected into the abdominal cavity of guinea-pig No. 186, weighing 385 grams. On October 10, 1894, I killed this pig, and I found a nodule the size of a pea at the point of inoculation. Three small tubercles were found in the peritoneum; the omentum and liver were filled with tuberculous nodules. One testicle was tuberculous.

This is an interesting case, showing that the germ, which had not spread in the rabbit, had, when transferred to the more susceptible pig, induced a widespread tuberculosis.

Pig *a* weighed 1030, and *b* 1100 grams. In both nodules as large as filberts were found at the point of inoculation, and smaller nodules in the omentum. On October 10th I killed No. 1, weight 2134. This animal was found to be wholly free from tuberculosis. On October 4th I killed No. 2, weight 2150, which was found perfectly normal. No. 3 was found dead October 2. Post-mortem examination showed a pear-shaped tumor in the omentum. This tumor was three inches long and one-and-a-half inches in diameter at the base. It consisted of three cysts, which contained very fetid pus, in which were found a short bacillus and a large micrococcus. There was no evidence of tuberculosis. No. 4 was killed October 10th, weight 1990. I found a small nodule at the point of inoculation. This was not attached to the abdominal wall, but was in the connective tissue, between the skin and the muscle. I could find no germ. In all other respects this rabbit was normal. No. 5 was killed October 10th, weight 2000, and found perfectly normal.

These experiments indicate that rabbits may be rendered immune to tuberculosis by previous treatments with yeast nucleinic acid.

THE TREATMENT OF RABBITS WITH NUCLEIN.

On May 26, 1894, I inoculated rabbits 1, 2, and *a*, intra-abdominally with a pure culture of the bacillus tuberculosis. Their respective weights were 657, 685, and 547 grams. Nos. 1 and 2 had daily, from May 28th to July 3d, 0.5 c.c. of a 1 per cent. solution of yeast-nucleinic acid; *a* had no treatment. No. 1 was killed October 11, 1894, weight 1390, and found normal in every respect. No. 2 was killed October 11th, weight 1530, and was found perfectly normal. Pig *a* was killed October 11th, weight 990 grams. A nodule as large as a filbert was found in the peritoneum at the point of inoculation. There were many millet-seed nodules in the peritoneum and omentum, one in the left kidney, two on the walls of the abdominal aorta opposite the left kidney, several on the peritoneal covering of the greater curvature of the stomach, a tuberculous mass on the smaller curvature of the stomach, and the liver was dotted with pin-point nodules.

June 8, 1894, I inoculated intra-abdominally rabbits 1, 2, 3, 4, 5, 6, 7, and *a* and *b* with a pure culture of the bacillus tuberculosis. These animals were only a few weeks old, and their respective weights were respectively 365, 335, 327, 405, 415, 430, 385, 350 and 375 grams. No. 1 had daily,[1] from June 11th to September 25th, 0.5 c.c. of ½ per cent. of yeast nucleinic acid.

These experiments convince me that when the treatment is begun within three or four days after the inoculation, the development of tuberculosis in rabbits may be prevented by yeast-nucleinic acid. These experiments will be repeated, and the length of time between the inoculation and the beginning of the treatment will be increased.

[1] The statement that these treatments were given daily needs some modification. My assistant, Mr. Perkins, who administered these treatments, gave up his vacation to the work, and, had it not been for his untiring perseverance and sacrifice of time and labor, I could not make this report. But he could not attend to this every day, and during the time mentioned there were eighteen days in which no treatment was given. No. 1, now weighing 1337, was killed October 5. Examination showed no abnormality. Nos. 2, 3, 4, 5, 6 and 7, having had the same treatment as No. 1, were also killed October 4. Their respective weights were 1400, 1410, 1295, 1425, and 1395 grams. No. 2 had coccidia in the liver, but no tuberculosis. No. 3 was normal. No. 4 had a millet-seed tubercle in the right inguinal region. This contained bacilli. No other abnormality could be found. No. 5 had a millet-seed nodule in the omentum, in which no germs could be found. Otherwise it is normal. No. 6 had coccidia in the liver, and one pin-head tubercle in the omentum, in which no germs could be found. Otherwise it was normal. No. 7 was normal in every respect.

Pigs *a* and *b* were killed October 5, their respective weights being 1488 and 1320 grams; *a* had a tuberculous nodule as large as a cherry-seed at the point of inoculation, and numerous smaller ones in both the greater and the smaller omentum. The liver contained several nodules as large as split peas, and a few were found in the diaphragm. The right kidney was tuberculous. *b* showed diffuse tuberculosis in the abdominal walls for one-half inch around the point of inoculation. There were two nodules in the omentum, and the liver was thickly dotted with pin-point tubercles. The other organs were normal.

YEAST NUCLEINIC ACID IN TUBERCULOSIS IN MAN.

In reporting my observations on this point, I am beset with certain difficulties. In the first place, the solutions used during the first six months were by no means free from other proteid material, and the exact amount of nucleinic acid in them was not known. In the second place, I had an idea in the first part of my work that the efficiency of the nucleinic acid would be increased by administering it in a strongly alkaline solution. This idea was founded upon the experiments of Fodor, who has shown that certain animals are rendered partially immune to anthrax by increasing the alkalinity of the blood. However, a condition may be protective to an animal against one disease, and without influence, or even detrimental, in another disease. McClintock has recently made one series of experiments in which a number of tuberculous guinea-pigs were treated with hypodermic injections of a solution of sodium carbonate, while others inoculated at the same time with the same sputum were left without any treatment whatever. The results showed not only that the treated animals died before the untreated ones, but the treated ones showed a much more extensive tuberculosis than we have ever before observed in animals dying from inoculation-tuberculosis. These experiments will be repeated, and should the results be confirmed we must conclude that the administration of an alkali diminished rather than increased the efficiency of the nuclein-treatment.

In the cases most recently treated I have, of course, attended to many details that I have ascertained to be important, and of which I was formerly ignorant. Moreover, I have improved the preparation of the nuclein. I also now refuse to employ the remedy in advanced cases in which I know it can be of no service. By carefully examining the sputum of every person who comes to me with a cough, and by testing every sample of urine that contains any pus or blood for the bacillus, I have detected the presence of the disease in its earlier stages. Consequently, the results obtained during the past twelve months have been more satisfactory than those of the earlier months.

(To be concluded.)

Hypertrophic Cirrhosis of the Liver in a Boy of Fourteen.—MIRINESCU (*Rev. des Maladies de l'Enfance*, October, 1894, p. 560) has reported the case of a boy, fourteen years old, who had drunk considerable quantities of alcohol, and had also been exposed to malarial fever, and who presented enlargement of the liver and of the spleen, with peritoneal effusion, pronounced icterus, and enlargement of the veins of the abdomen. There was an absence of actual symptoms of alcoholism, and the condition was diagnosticated as hypertrophic cirrhosis of the liver, and ascribed to chronic malarial intoxication.

DEPURATION AS A THERAPEUTIC PRINCIPLE IN THE TREATMENT OF NERVOUS AND OTHER AFFECTIONS.

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The publication of *Armstrong on Purgatives* early in this century made a deep impression on the medical practice of the time, and its influence may still be traced in such phrases as "unloading the chylopoietic viscera," "changing the secretions," etc. The principle of depuration, as well as of derivation, was then distinctly recognized, but in our day physicians have been so occupied with the results of chemic and biologic research as to be hardly sufficiently mindful of the great truth embodied in this phrase. It is the purpose of this paper to show the importance in therapeutics of this principle.

First, as to the method: It consists in the exhibition of remedies acting on the organs of excretion, to secure elimination of accumulated waste products, and of various poisons, organic and inorganic, produced in or finding admission to the human body. The remedial measures in question are full doses of the iodids carried to the point of saturation, of pilocarpin in sufficient doses to set up its physiologic actions on the glandular apparatus of the whole internal and external integuments, and of purgatives and diuretics according to circumstances. The combined effect of these remedies is to set in motion the organs concerned in elimination and excretion. We know that the iodids form soluble combinations with the metals, which are then reabsorbed into the circulation and eliminated. We know that pilocarpin secures the excretion of waste products through the glands of the skin and mucous membrane. It is within every one's knowledge that suitable purgatives and cholagogues procure the expulsion of the complex products of intestinal fermentations, and also, by means of salines and diuretics, we can increase the functional activity of the kidneys, and thus effect the elimination of the waste materials of tissue-metamorphosis.

Second, as to the conditions requiring the depurative method: It is an indisputable fact that numerous and subtile influences of a pathogenic kind, only in part ascertained or even suspected, affect every individual in these days. Morbid states are produced not only by minute organisms, but many mineral and vegetable poisons are formed by various processes in the arts, and supplied through the agency of the conveniences of life. Metals, especially lead, zinc, copper, tin, etc., are much employed in the conveyance of water and in culinary operations, and, although their grosser effects are recognizable, they sometimes cause remote and unexpected changes that elude our means of investigation. Volatile metals are cast into our atmosphere by manufacturing establishments, and metals are deposited in the tissues in insoluble forms in the course of medical treatment, and the results are equally obscure. Gaseous poisons formed by animal and vegetable decomposition are freely inhaled with the air, and minutely divided solids find access to the system in the same manner.[1] Ptomains are generated in the intestinal canal, and organic poisons, the products of the physiologic activity of pathogenic organisms, are formed there also in quantity. Other sources of possible contamination might be mentioned, but these must serve our purpose, which is merely to indicate the fact that depurative treatment has its reason in some obvious conditions, and in others that are suppositious merely, yet probable.

According to the plan here suggested, we prepar the way for the curative action of our remedies, and sometimes, indeed, obtain immediate curative results. To illustrate the manner in which the method acts, the case of syphiloma of the brain may be cited. The routine treatment of gummata, as all the world knows, consists in the exhibition of massive doses of the iodids and mercurials; but it sometimes happens that the best-directed efforts fail, we may suppose, for lack of preliminary or contemporary depuration. Not long since I saw in consultation a case of gummata at the base, with the well-known signs of interference with the cranial nerves, and epileptiform seizures, in which, notwithstanding the usual remedies had been diligently applied, they did not produce the expected results, but soon yielded when pilocarpin was simultaneously administered. The abundant perspiration diminished the intracranial pressure, and the increased excretion of the organs concerned in this function brought about absorption of the products of the specific inflammation. The action of pilocarpin may be regarded as a substitute for the decoctions and the baths, so long held to be of sovereign efficacy in these affections. By means of it we can readily obtain that eliminant action which was formerly supposed to be excited only by measures of a complicated and troublesome character.

To illustrate the character and success of the depurative method in question, I submit some cases treated in this way.

A gentleman of sixty-four years began to have the evidences of a commencing hemiplegia of the left side, with some sensory disturbance of the right. He is of fine physique, weighs 180 pounds, is active in his habits, and free from the usual vices,

[1] A few years ago there was found in the air of this city dust derived from the destruction of an island in the Pacific by an earthquake.

except that he smokes rather too much. For several months he had felt himself declining in strength, became unable to walk, lost his breath on slight exertion, experienced a good deal of headache, and hebetude and uncertainty of mind.

On objective examination the following symptoms were developed: An evident paresis of the muscles of the left side of the face, the labio-nasal fold being nearly obliterated on that side; the upper and lower extremities of the left side were weak, the reflexes rather heightened, and the senses of touch, pain, and temperature were less active than the normal; on the right side he experienced some sensory disorders; the tongue was protruded to the right, and there was some tingling of the tip of the tongue and of the lips; speech was slow and somewhat thick; the pupils were sluggish; hearing was dull; respiration was labored on even slight exertion; the action of the heart was weak and the sounds reduplicated; appetite was indifferent and digestion labored; he was constipated; the urine contained 0.5 per cent. of albumin, and was rather diminished in amount. The point of chief concern was the condition of his mind. His faculties had become somewhat clouded and he had experienced great difficulty in writing a letter, making wrong use of words and omitting words, so that he had been compelled to give up his correspondence.

In considering the case with a view to a therapeutic diagnosis, the character of the changes in the organic substratum seemed rather obscure. The nature of the etiologic factors was also not readily determined. There had been no rupture of an intracranial vessel and hemorrhage; there were no signs of an embolus, and little evidence of arterial degeneration, although capillary thrombosis from endarteritis might be suspected. There were signs, however, of insufficient excretion, of accumulation of waste products, for, notwithstanding the predominant symptoms were unilateral, there were some bilateral, showing that the causative conditions were general in operation also. The most obvious necessity was to put in action the various organs of elimination. Accordingly I prescribed scruple-doses of sodium iodid four times a day until iodism appeared, and pilocarpin hydrochlorate, ⅛ grain, every night, to be increased if necessary till free diaphoresis occurred. A mercurial purgative began the treatment. But few doses had been taken when the conjunctiva became inflamed and an acute laryngeal catarrh was set up, and all of the usual symptoms of iodism came on energetically. The pilocarpin acted with the same severity. The result was admirable, and a few days disposed of the formidable morbid complex, and full restoration to the normal ensued, and has been since maintained.

To demonstrate the utility of the depurative method in other than nervous maladies, I will cite a case in which the gastro-intestinal mucous membrane, the stomach and liver were affected simultaneously.

A gentleman aged about thirty-five years, employed in a bank and closely confined to business, began to suffer from digestive disorders. He was a small, spare man, weighing in full health not more than 140 pounds, and he progressively declined in flesh and strength, was compelled to quit business, and presently was confined to his bed, being reduced when at the lowest point to 94 pounds. He had severe pain at the cardia and much distress after taking food. Nausea, and vomiting of almost every article swallowed ensued. There was no vomiting of blood; the matters brought up had an acid reaction, and no blood-globules could be found on the most careful examination. He was obstinately constipated. At one time he became jaundiced. The blood became so altered that it flowed from the mucous surfaces, especially from the nasal, and plugging became necessary at last to prevent death from hemorrhage. He was now reduced almost to the lowest point compatible with life. The physician in attendance, a most skilful man, had exhausted every resource in his efforts to stay the progress of the disease. When called in consultation it seemed to me futile to suggest remedies of approved utility in gastro-intestinal disorders, and recognizing the need in this direction, I advised a resort to depuration. The doctor gave ⅛ grain of pilocarpin to begin this plan of medication. The action was striking. Every organ—the skin, the mucous membrane of the gastro-intestinal canal, the salivary glands of the mouth, and we may reasonably conjecture the pancreas, and certainly the liver—took on most abundant activity. The saliva flowed in a stream, he sweated profusely, and the bowels moved copiously, the discharges having the so-called "bilious" character. No depression followed this free elimination; on the contrary, immediate improvement took place, and he had no more hemorrhage. The effects of the pilocarpin were sustained by the exhibition of 15-grain doses of iodid. It might be supposed that in a case characterized by such extreme irritability of the stomach, a remedy of this kind would be badly, or not at all, borne by the stomach. The result, however, demonstrated the utility of the treatment, for the patient made great immediate progress, and although there have been occasional relapses, he has since continued to improve in nutrition, and is now practically well.

Other examples might be brought forward to show the application of the principle to the treatment of diverse affections, and the two already given might have been described in fuller detail; but these must suffice for the present. My purpose is subserved by calling attention to the method, which may profitably become a routine-habit in many cases whose etiologic relations are of a kind to suggest it.

The Value of State Medical Examinations.—From the organization of the Maryland Board of Medical Examiners, in June, 1892, until November, 1894, 130 candidates for license to practice have been examined, of whom 102 were successful upon the first examination and 3 upon a second examination; the remaining 25 that failed to pass the first examination did not apply a second time, and were rejected.

SELF-RETAINING DRAINAGE-TUBE AFTER SUPRAPUBIC CYSTOTOMY FOR CHRONIC CYSTITIS AND PROSTATIC OBSTRUCTION.

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THE formation of a permanent suprapubic fistula in the treatment of hypertrophy of the prostate gland complicated by cystitis has become a recognized surgical procedure. It is an operation which not only affords prompt relief after all other methods of treatment have failed, but is also calculated to prolong life by preventing further extension of the inflammatory process in the direction of the kidneys. Contrary to the experience of other surgeons, notably Dr. Hunter McGuire, I have found it very difficult to keep the suprapubic fistula sufficiently patent for any length of time without a resort to some form of drainage-tube. I have almost invariably observed that as soon as the drainage-tube is dispensed with the fistulous opening contracts rapidly, and in a few days it has to be dilated in order to afford a free outlet for the urine.

Systematic catheterization of the new passage has proved very unsatisfactory in my experience in all cases in which this part of the treatment was intrusted to the patient. I have resorted to the use of various kinds of drainage-tubes devised and described by different surgeons from time to time, with similar unsatisfactory results.

It is difficult to maintain the necessary degree of patency of the new outlet for the bladder with any kind of a soft-rubber tube. The tubes made of metal, or of hard rubber, used for the same purpose, are likely to produce pain and harmful pressure at the neck of the bladder. The neck of the bladder is the most sensitive part of the viscus, particularly when the bladder is in a condition of inflammation in consequence of chronic prostatic obstruction. A drain that has to be employed for a long time, or permanently, should not press against the swollen sensitive prostate or inflamed neck of the bladder. For the purpose of rendering the drain self-retaining, and with a view of preventing painful pressure, I have devised the instrument shown in Fig. 1. The instrument is made of silver; the bulbous end has a large round terminal, with numerous smaller oval, lateral openings, and when in place, corresponds with the long axis of the bladder. The adjoining elbow shows two lateral and one posterior oval opening, which are intended to drain the space above and behind the enlarged prostate. The straight part of the instrument between the two elbows should correspond in length with the thickness of the tissues above the pubes, interposed between the skin and mucous membrane of the bladder. The part below the second elbow terminates in a raised margin over which a piece of rubber tubing is slipped. An ordinary clamp fastened to the end of the rubber tube prevents the constant escape of urine, and is made use of as soon as continuous drainage has became superfluous and the patient is able to leave his bed. The instrument when in place (Fig. 2) drains the bladder perfectly,

FIG. 1.

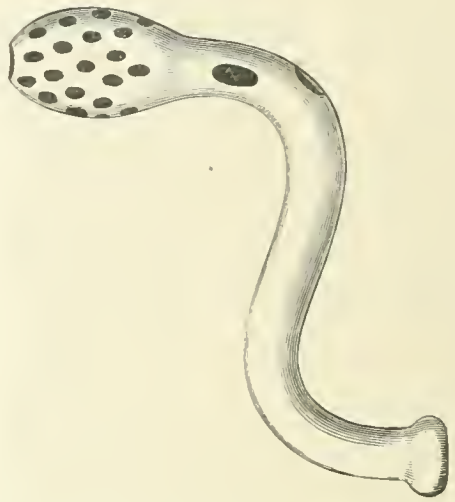
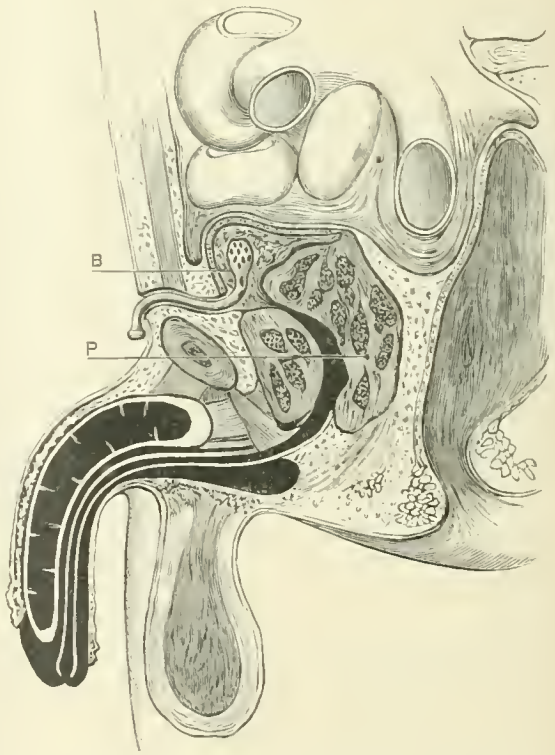


FIG. 2.



makes no pressure against the prostate or neck of the bladder, and is self-retaining. It can be removed and reinserted with ease. I have recently performed suprapubic cystotomy in three cases of enlarged prostate in men from sixty-five to seventy-two years of age, complicated by chronic cystitis, and in two of the cases by stone in the bladder, and in every instance prompt relief was obtained. All of the patients made the statement that they were never aware of the presence of the tube. The tube should be removed at least once a week, and be thoroughly cleansed of all internal and external incrustations and at once replaced. The bladder can be thoroughly washed out by injections *per urethram*. With a little instruction and practice the patient soon acquires the necessary manual dexterity and skill to remove and reinsert the tube himself. As long as prostatectomy either by the urethral, perineal or vesical route remains such a dangerous and unsatisfactory operation as it is at the present time, any improvement in the formation of a permanent suprapubic fistula will be appreciated by surgeons who are frequently appealed to for relief by a large class of patients whose declining years are clouded and rendered miserable by one of the most distressing of all surgical affections.

ON THE VALUE TO THE SURGEON OF ANTIPYRIN, OF MUSTARD AND SUGAR, AND ON THE PREPARATION OF CERTAIN SURGICAL DRESSINGS.

BY ROSWELL PARK, A.M., M.D.,
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DURING the winter of 1885 my attention was called to an article by someone whose name I do not now remember, stating that he had found a solution of antipyrin to be an efficient hemostatic in the treatment of urethral hemorrhage. This statement was made to me by a visitor at one of my clinics at a time when I was in need of something that might act in this way. Accordingly, I at once made a 4 per cent. solution, tested it for this purpose, and found it very satisfactory. This was my first introduction to antipyrin as a hemostatic. Charmed with the result thus produced, I at once began experimenting with it in a variety of surgical cases. Having learned, in one way and another, that it was a most efficient and practically harmless styptic, I desired to ascertain whether it was one that could be safely used inside of the body-cavities, and whether it had any antiseptic properties. I tested it carefully in my own laboratory, and learned, by repeated experiments, that while not a strong antiseptic it, nevertheless, had marked antiseptic properties, holding its own fairly well with many of the other synthetic productions that have of late been so freely placed upon the market for this purpose. It compares, indeed, very favorably in this respect with most of the anilin or coal-tar derivatives that we use in medicine. I then began experimenting upon animals, or, rather, using the drug during various experiments, employing for this purpose a 4 per cent. or 5 per cent. solution in sterilized water. I soon learned that this could be used anywhere upon the peritoneum, upon the bowel, upon the brain-surface, or anywhere else, invariably exhibiting its styptic properties and causing no symptoms that lead me to regret its use. Thus fortified, I began its general use in aseptic surgery. Now I keep a standard solution in my clinic, where I always have fifteen or twenty pounds of air-pressure ready to be used for spraying, and small hand-sprays, which, with this-air pressure, are conveniently at hand for any emergency. I have never hesitated to spray a 5-per cent. solution on an exposed and oozing surface, whether this were on the cortex of the brain, in the nose or mouth, in the peritoneal cavity, upon injured liver or bowel, or anywhere else.

I have found that antipyrin has power not sufficient to contract vessels of any size that spurt, but to almost instantly blanch and check oozing from any surface from which blood is escaping just fast enough to be an annoyance. I have hundreds of times demonstrated this efficiency in my clinic, and at various times, when visiting other operators, have been able to make the same demonstrations for them. As a consequence, a number of my surgical friends are now using this remedy for this purpose. It may be injected into a cavity, as in bone; it may be applied on compresses to the oozing surface, or it may be sprayed as mentioned; but no matter how applied, under circumstances indicated within the limits given, it will seldom, if ever, be found to disappoint.

I think it essential to say that I have thus tested it bacteriologically, because some might otherwise hesitate to use it. My own preference for operating is, whenever possible, by the dry method, and in many cases, unless something is positively indicated, I let nothing come in contact with the fresh wound-surfaces—neither antiseptic solution nor anything save sterilized compresses. Upon such a surface, however, if necessary I would not hesitate to employ a sterilized solution of antipyrin, believing that it is sufficiently antiseptic to be left without feeling that one must remove every particle of the solution. Moreover, it is practically unirritating, since I have never known harm to occur from its entrance into any part of the body where it was not called for. I should have no fear, for instance, if a little of the solution trickled down into the peritoneal cavity after it had been applied to the surface.

Antipyrin has this great advantage over such styptics as the salts of iron, in that it constringes the minute vessels and does not leave any external clot in the way, or that may break down, or that in any sense shall be undesirable, as are the clots, for instance, made by Monsell's solution. In cases of epistaxis, for example, a solution of antipyrin may be sprayed into the nose with the greatest benefit. It will serve a most admirable purpose after intranasal operations, as I have many times convinced myself. In the urethra, as after internal urethrotomy, it will have the same beneficial effect. In certain operations on the mouth I have had patients occasionally gargle a weak solution, or have inserted tampons saturated with a solution of antipyrin to which a little glycerin has been added. Up to the present I never have known any unpleasant result from its use in any part of the body in solutions not exceeding 5 per cent. for the purposes stated. Sometimes, in fact, I have used solutions as strong as 10 per cent.

This leads me to speak of certain other purposes for which a 4 per cent. or a 5 per cent. solution of antipyrin may be locally used. In 1888 I mentioned to my friend Professor Hinkel, of this city, the relief that I had found antipyrin to afford in certain cases of inflammatory occlusion of the nose, as well as its hemostatic virtues. He began using it, was much pleased with its effects, and wrote an elaborate article entitled "Clinical Notes Upon the Use of Antipyrin in the Nasal Passages," which was published in the *New York Medical Journal* for October 28, 1888. I speak of this particularly, because quite recently I have seen an article, emanating from New York, claiming originality for this discovery, the author apparently being quite unmindful of the article published by Dr. Hinkel some years previously.

When antipyrin is to be used for any medicinal purpose necessitated by affections of the head, as, for instance, headache, coryza, etc., there is no way by which its effects are so speedily gained with so little disturbance and so little danger, as by spraying it into the nose. It must be acknowledged that these solutions give rise to some temporary smarting and irritation of the mucous membranes, and my custom is first to spray in a weak solution of cocain and to follow it in a few moments with the antipyrin. At other times the two may be combined. The effect of the cocain is not merely to anesthetize the surface, but to constringe the vessels, this effect, however, quickly passing away. The effect of the antipyrin seems to be to carry out to a much more marked degree the conditions thus produced by the cocain, the constringing of the tissues lasting sometimes for several hours, which would not be the case when cocain alone is used. For "that stuffy feeling" of which many patients speak, complaining of a catarrhal condition of the upper air-passages, accompanied by a certain amount of discomfort or actual pain in the anterior part of the head, there is nothing in my experience that begins to afford so speedy relief. For my own part, if I ever have to resort to antipyrin to gain relief from headache, I should prefer to use it locally rather than to take it internally. The quantity required is much less, which of itself is an important item, while the effect produced is manifested very much more quickly. The same is true also of certain acute affections of the throat; and the discomfort attending an ordinary attack of pharyngitis, with the soreness radiating into the neck and head, can be more quickly relieved by this spray than by any other measure that I know of. Of course, I do not mean to imply that this solution will be all-sufficient. Other and more general measures are called for at the same time; but I maintain from a quite extensive experience with the drug that it will give early relief more satisfactorily than anything else of which I have knowledge.

Undoubtedly, the effects, either styptic or analgesic, that I have eulogized are due to the same constringing effect upon the tissues of the body. Antipyrin in its local effects is generally astringent, but that it has these properties comparatively few are yet aware, and this therapeutic note is written with the view of enabling others to take advantage of a very valuable fact.

(To be concluded.)

CASTRATION FOR THE CURE OF HYPERTROPHIED PROSTATE.

By J. WILLIAM WHITE, M.D.,
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The reception by the medical profession here and elsewhere of the suggestion made by me in June, 1893, that castration might be an effectual remedy for prostatic hypertrophy has been increasingly favorable. Up to that time no reference existed in surgical literature to the possibility of affecting the overgrowth by the removal of the testes. Since then twelve more or less successful cases have been published. It is not too much to say that, in connection with the further corroborative evidence that has been brought forward, they serve to establish the operation as a rational and justifiable procedure. I have already reviewed in The Medical News (June 2, 1894) the history of eight of these cases (Haynes, 3; Smith, 1; Ramm, 2; Powell, 1; White, 1). The other four may be briefly summarized as follows:

Mayer and Haenel (*Centralblatt für die Krankheiten der Harn- und Sexual-organe*, August 23, 1894) operated May 16, 1894, on a man, about

seventy years of age, with a much enlarged prostate, with cystitis and ammoniacal urine, tenesmus and toxemia, and in whom catheterism was becoming impossible on account of the pain it excited. There were several ounces of residual urine. Some improvement was noted in a few days; after two weeks the tonicity of the bladder began to return; in three weeks the urine was nearly normal; and in six weeks the prostate had shrunk to its proper dimensions, the bladder emptied itself completely, no catheter being required, urination was performed only once in four hours, and the urine was limpid and of acid reaction.

The authors discuss the apparent analogy between the prostatic and the uterine fibro-myomata (which was what led me to the researches that resulted in my suggesting the operation to the profession), mention my confirmatory experiments on dogs (which gave a definite and scientific basis for the suggestion), and after quoting Ramm's cases arrive at conclusions entirely favorable to the method, on account of its comparative safety and the ease of its performance, as contrasted with the other operative measures directed against the hypertrophied prostate.

Moullin (*The Medical Press and Circular*, September 19, 1894) reported the case of a man, about eighty-one years of age, with complete retention due to a prostatic enlargement the size of an orange, with cystitis and failure of general health, and in whom catheterization was impossible, all attempts being followed by hemorrhage. Supra-pubic aspiration was necessary on several occasions.

After the castration the improvement was almost immediate, the prostate was appreciably smaller in ten days, and in three weeks had practically disappeared. An ordinary catheter could be readily passed. The bladder had begun to regain power. The urine was nearly normal.

J. I. Thomas (*The Pittsburg Medical Review*, September, 1894) reports a case in which castration in a patient of sixty-five years, who had had symptoms of prostatic hypertrophy for fifteen years, had caused "considerable improvement." He adds, "urination, which was formerly very frequent, is now necessary but three times a day." This report was made very soon after the operation, and no further details are given.

B. M. Ricketts, of Cincinnati, reports (*Cincinnati Lancet-Clinic*, December 1, 1894) a case in which he did this operation in a patient, about seventy-four years old, who left the hospital at the end of the sixth day. On the second day after the operation the patient could urinate with greater ease, and the pain was so slight that he said he had not had so much comfort for a year; he could sleep four hours at a time during the night, whereas formerly he had been getting up once every hour, and had been urinating thirty times daily. The condition continued to improve. A further report was promised later.

Launois (*Ann. des Mal. des Org. Gen-Urinaires*, October, 1894) publishes an interesting memoir reviewing the whole subject, and bringing forward some collateral evidence, chiefly from the works of Godard, showing that monorchidism is likely to be associated with unilateral atrophy of the prostate, and giving instances of such atrophy after gonorrheal epididymitis, and of complete atrophy in cryptorchids, after syphilitic sarcocle, etc. He too concludes that the operation is of distinct curative value.

What might be called a supplementary indication for the operation will, I think, be found in some cases in which, with the usual urinary symptoms of prostatic overgrowth, there are others referable to the sexual system, and often causing more serious trouble. Every genito-urinary specialist is familiar with instances of "psychopathia sexualis" in old men, but not every one realizes that they often have a physical rather than a psychic basis, and depend on the prostatic congestion and excitation incident to the early stages of hypertrophy. In one of Haynes' cases the relief experienced in this direction was as marked as that derived from the disappearance of obstruction.

The details of several successful operations performed here will shortly be published.

The objections to the operation met with in practice have, in my experience, arisen altogether from the sentimental side of the question. As Launois says, men of advanced age, "aimant à se faire illusion," insist upon retaining their testicles as evidences of a "virilité passée." This applies of course with especial force to the cases in which dysuria is slight or catheterism easy, the general health remaining unaffected. As to the more serious cases, such as those I have noted, we have now reached a point in certainty of knowledge where we can promise results at least equivalent to those obtained by oöphorectomy for uterine fibroids, and I believe that the assertion made in my original paper was correct, and that "there will be no lack of cases willing to submit to an operation almost painless, with a low mortality, and followed by no such unpleasant conditions as accompany persistent fistulous tracts, either supra-pubic or perineal, even although the operation carries with it the certainty of sacrificing whatever sexual power has survived the excessive and often intolerable sufferings of such patients."

All who are interested in anti-football should secure a copy of the *Ithaca* (N. Y.) *Daily Journal*, in which Professor Burt G. Wilder occupies six full columns in a splendid answer to the question, *Is Intercollegiate Football to Continue at Cornell University?* It is a masterly and convincing epitome of the unanswerable arguments against the intercollegiate game.

REMARKS ON THE CONTINUED FEVERS OF LOUISIANA.[1]

BY RUDOLPH MATAS, M.D.,
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PRESIDENT OF LOUISIANA STATE MEDICAL SOCIETY, ETC.

IN the nine years that have elapsed since the reading of my paper before this Society on the "Long-continued Fevers of Louisiana that Resist Quinin" my opportunities for observation have greatly increased, and I feel that I have gathered sufficient evidence to permit me to formulate a few conclusions pointing to the real nature of these fevers. In the paper referred to I insisted upon the distinctive clinical type of our continued fevers, and emphasized its differential characteristics from malarial fevers and from typhoid. I also confirmed the careful observations of Dr. John Guitéras, who had studied this form of fever in Key West, and had described it as an independent morbid entity in a paper published March 10, 1885, in the *Therapeutic Gazette*, under the title "Continued Fever, or so-called Typhoid Fever of the Tropics, or Continued Thermic Fever." I believed with him then that it was neither malarial nor typhoid nor a hybrid combination of both, but the result of some form of exhaustion of the heat-regulating apparatus.

It is now unnecessary to reproduce the clinical picture of the fever in question. We all know it, though we may call it by different names. I simply desire to supplement my paper of 1885 by expressing the opinion that the type of fever in question is not a new or independent morbid entity, but an atypical typhoid fever. This opinion is based upon the following conclusions derived from personal observation and experience and by clinical records which substantiate the facts:

1. The course of the long-continued fevers of Louisiana is not in the least altered or notably influenced by the cinchona alkaloids; ergo, it is not a malarial fever from the therapeutic standpoint.

2. That this fever occurs at all seasons of the year, though it is more prevalent during the summer months; ergo, it is not a "thermic" fever pure and simple.

3. That cases of the fever occur in groups (and probably in districts), several members of a household being attacked simultaneously or in rapid succession; ergo, infection from a common source.

4. That while the true classical and grave typhoid type of fever is exceptional and comparatively rare, it nevertheless exists in our midst in persons who are born in this city and who have never lived elsewhere; ergo, typical typhoid fever exists as an endemic in New Orleans.

5. That in the comparatively rare cases of typical typhoid fever all the essential characteristics of the typhoid state are present, viz.: long-continued fever, varying from four to six weeks, with typical chart; adynamic state, stupor, low muttering delirium, diarrhea, intestinal hemorrhages, perforation of the bowel and fatal peritonitis.

6. That in many other (less rare) cases the febrile movement, though long continued, presents few of the adynamic or ataxic characteristics of the typhoid state; the mental state is good, but diarrhea and intestinal hemorrhage are nevertheless present.

7. That in the majority of the cases the chief and apparently only characteristic of the fever is its persistence; its long duration and rebelliousness to antiperiodic or other medication. The only point of contact between this and the preceding types lies solely in the continued thermic movement.

8. In infected houses, where several cases are under treatment, it is not very rare to observe a fever of a most *typical* and grave typhoid type running through its course by the side of a benign *atypical* fever in which there are no adynamic symptoms, no diarrheas, no hemorrhages, nothing, in fact, but a simple and uncomplicated thermic movement.

I would now also state, as a matter of pure personal impression and belief without a sufficient basis of statistical facts outside of general personal observation, that it is my impression that:

1. The true malarial type of fever—the strictly intermittent—is gradually disappearing from the city limits, and is now almost restricted in its prevalence to the swampy portion of our suburbs.

2. That the continued type of fever is gradually gaining the ascendency, and the true typhoid type is yearly becoming more frequent.

3. That this gradual transition from the intermittent to the plain remittent continued, and, finally, to the continued typhoid type of fever, is a phenomenon that has been observed elsewhere, where the original conditions of nature gradually suffered profound alterations from the presence of a progressively increasing human population; that malarial fevers are the products of the unredeemed, uncultivated swampy lands, while the typhoid type is a product of human aggregation which usually follows in the wake of increased means of communication and other conditions inherent especially to metropolitan life.

4. That this transition in our fever-type is being effected gradually without any perceptible change in our water-supply, milk-supply, or food-supply, or in our sewerage-system or drainage-system, and that the only conditions that have changed have been the notable increase in the facilities for communication between this and other large northern and western metropolitan centers where the typhoid type of

[1] Read before the Louisiana State Medical Society, May, 1894.

fever has long predominated and whence it could be readily imported.

. . . . . .

Finally, a word as to treatment:

The vast majority of our cases are benign in their tendency, and require only symptomatic and hygienic treatment and careful nursing. The chief therapeutic indication is usually to control an excessive or hyperpyretic movement. In sthenic cases the antithermic remedies, especially phenacetin and antifebrin in small doses and in combination with some alcoholic, will meet the indication. My rule has been never to administer an antithermic dose (2 to 3 grs.) unless the temperature rises above 103°, and in the latter stages, when the patient is showing signs of exhaustion, never to give the dose until 104° has been reached.

In the asthenic cases stimulation, with proper nourishment, and the cold bath constitute my chief reliance. The method of Brand is far superior to all forms of antithermic medication, but it is difficult to apply in the homes of the poor, who are without help and unable to pay for the services of a competent nurse.

In the asthenic cases in which the ordinary antithermics are badly tolerated, and in which for fear of hemorrhages or other causes it is impossible to move the patient to the bath, I believe that the epidermic use of guaiacol by Sciolla's method and Da Costa's directions is of service in combating hyperpyrexia. I had a typical case which occurred a few months ago in which guaiacol did good service. As an adjunct of great value in reducing fever and in diminishing the tendency to delirium I always insist upon the use of the ice-bag or ice-pillow as a head-rest. All the other indications for complicating conditions should be met in the manner described in the classics.

CLINICAL MEMORANDA.

OBSTETRIC MEMORANDA.

By B. C. HIRST, M.D.,
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A PELVIS SPINOSA.

Case I.—A true spinous pelvis is very rare. So far as I know the condition has never been recognized before in America. It was referred to as early as 1697 by Hauder; again by Merz in 1790, and later by Denman, Burns and Duparcque, but was not clearly described until the appearance of Kilian's work, in the middle of the present century. The peculiarity of the spinous pelvis is the development at the ilio-pectineal eminences and along the crests of the horizontal rami of the pubic bones of sharp spicules and ridges of bone. Over the promontory of the sacrum and at the sacro-iliac junctions there may also be exostoses, but these are not shaped like thorns; they are buttons or knobs in form. It is possible to find sharp spinous projections of bone from other portions of the pelvis than the ilio-pectineal eminences and the crests of the pubes. Leopold has published a picture of a pelvis with a large thorn-shaped exostosis springing from the left ilium near the sacro-iliac junction. Kilian claimed that in the four cases he reported the sharp-pointed exostoses perforated the womb in each instance, and this has since been asserted to be almost a necessary consequence of labor in such a pelvis. But it was true of only one of Kilian's cases, and in some others more recently reported the uterine rupture can be demonstrated not to have been due to the exostoses at all. While sharp-pointed exostoses in the pelvis, therefore, can perforate the womb in labor, it is by no means certain that they will do so.

The woman in whom I recently discovered a spinous pelvis gave the following history: Mrs. S., aged twenty-four, married four years, has had two children. The first child died when two months old; the second was born two years ago. The woman has congenital osteomata on the heads of the tibiæ. A brother and a sister also have osteomata on the lower extremities. Her second child is alive and well, with no bony excrescences on its body. After the birth of her first child, three-and-one-half years ago, she first noticed a small, hard tumor over the posterior superior spine of the right ilium, extending down along the sacro-iliac junction. She had always enjoyed perfect health till after the birth of her second child, when she noticed a sudden and decided enlargement of the iliac tumor, which has steadily increased in size, and is now as large as a base-ball. During this period of constant growth there has been an increasing pain in the lumbar region, extending down the right leg to the great toe, evidently due to pressure upon the lumbo-sacral plexus.

Vaginal examination shows a sharp, bony excrescence springing from the left ilio-pectineal eminence, a ridge-shaped exostosis along the crest of the pubis, an outgrowth of bone over the right ilio-pectineal eminence not so pronounced as that upon the left side, and a large osteoma over the right sacro-iliac junction. The woman's history pointed to the possibility of pregnancy of a few weeks' duration. Should that be her condition, and should she return to the dispensary service, where I saw her, and which she has so far failed to do, I should induce labor three or four weeks before term, such a course being perfectly safe for the child and affording the mother all needful protection by securing the passage through her pelvis of a soft, compressible fetal head that will not grind a hole through the uterus between itself and the pelvic exostoses.

DIFFUSE UNLIMITED SUPPURATIVE PERITONITIS IN A PREGNANT WOMAN, ENDING IN RECOVERY.

Case II.—In as thorough a search as it was possible for me to make through medical literature some three years ago, I was unable to find a single case of diffuse suppurative peritonitis during or after the child-bearing process saved by operation. This was in accord with my own experience. I had had a number of successful results in localized intra-peritoneal suppuration, even when one-quarter of the abdominal cavity was involved, but had never saved a case of diffuse suppuration. Five months ago I had my first success with this form of suppurative

peritonitis, and this is the first successful result I have any knowledge of, though it may well be that a few others are by this time on record.

Mrs. ——, a patient of Dr. M. Graham Tull, was seized at nine o'clock one evening last summer with violent abdominal pain. She was at the time four-and-one-half months pregnant. Dr. Tull found her with a distended, exquisitely sensitive abdomen, rapid pulse, and a temperature of 101°. There was no accounting for her seizure. On the following morning she was worse. By the afternoon Dr. Tull saw that an operation was necessary. I was sent for, and operated that evening about eight o'clock. The incision was median. A large quantity of thin pus ran out when the peritoneum was opened. The abdominal cavity and the intestines presented the typical appearance of diffuse suppurative peritonitis. There was no limitation, no demarcation between a diseased and a healthy area. Pushing the pregnant uterus aside, the origin of the trouble was discovered in a diseased appendix. There were also two ulcers on the caput coli excavated down to the mucous coat of the bowel. The appendix was removed, the ulcers oversewed, the abdominal cavity washed out, the walls closed and drainage for a few hours provided for. The woman made an uneventful recovery, and is about to be delivered at term.

The explanation of the recovery in this case is to be found, perhaps, in the lesser virulency of the infecting agent—the bacterium coli commune—compared with the streptococci, commonly the cause of the suppurative peritonitis after childbirth.

A CASE OF ACUTE OSTEOMYELITIS IN AN ADULT, WITH EARLY OPERATION AND COMPLETE RECOVERY.

By BAYARD HOLMES, M.D.,
PROFESSOR OF SURGERY IN THE COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO.

THE diagnosis of acute osteomyelitis presents many practical difficulties, and the rarity of the disease makes it worth while to report every case observed during the first forty-eight hours. Old cases are common enough, and the diagnosis is easy when the pus is pouring out of a sinus or when sequestra are being discharged.

In June, 1893, it was my fortune to be called in the night to see a young man, about twenty-four years old, who was suffering great pain in the right leg. He had a temperature of 102.5° and a pulse of 108. The pain was constant and had been growing in severity during twenty-four hours. A surgeon had been consulted the day before and found no cause for alarm. The tibia was found exquisitely tender on pressure at a single point not more than an inch in diameter. There was no swelling or edema. A history of influenza and a short stay at the Hot Springs, Ark., was given. There were no other significant points in the history. A provisional diagnosis of acute osteomyelitis was made and the prognosis and indications for treatment explained. A hypodermic of morphin was given to relieve pain, and a cathartic was administered. In the morning the temperature was higher and the pulse more rapid. The pain and tenderness had increased. The family called Dr. Edmund Andrews and Dr. Christian Fenger in consultation. They saw the patient at different times of the day and confirmed the diagnosis and the indications for treatment. The temperature at night, eighteen hours after the first observation, was 105° and the pulse 124. The patient was partially delirious. The spot of tenderness over the middle of the tibia had become slightly swollen and edematous. The urine was examined, but no evidence of nephritis was found. Upon the following morning, thirty-six hours after the first observation, the patient was anesthetized and an incision made down to the tibia. The periosteum was distinctly edematous, and a yellowish serum poured out, which disappeared quickly upon sponging. The bone itself, at the point of tenderness, was more than ordinarily vascular, though the change was very slight. After chiseling away the anterior portion of the tibia near the middle of the bone a distinct vascular mass was found, in the center of which was a drop or two of pus. The sharp spoon was used to scrape out the surrounding tissues, and the wound was packed with iodoform-gauze. The upper and lower ends of the wound were brought together and the middle left open to secure drainage. The leg was put in a plaster-of-Paris cast. Upon the morning after the operation the temperature was normal and never rose again. The appetite immediately returned, and the patient felt the restraint which the cast imposed. The second dressing occurred about ten days after the injury, and at that time the tissues showed no sign of infection or inflammation. Upon the fifth dressing the wound had entirely closed, leaving a defect of bone underneath the skin.

Some weeks after the recovery the patient was getting on to a moving train and was thrown upon the ground, sustaining a simple fracture of this tibia at the point of operation. From this recovery is said to have taken place in the usual time.

EYE-STRAIN A CAUSE OF NOCTURNAL ENURESIS.

By GEORGE M. GOULD, A.M., M.D.,
OF PHILADELPHIA.

ON November 12, 1891, a little girl, M. S., nine years of age, a "nervous child," with headache, no appetite for breakfast, etc., was brought to me for treatment. The mother stated that the child slept very poorly, having frequent night-terrors, was somnambulistic, and had "other troubles," the nature of which I did not exactly learn until subsequently. Under a mydriatic I found the following remarkable error of refraction:

R. + sph. 0.75 D. ⊃ + cyl. 5.00 D. ax. 100° = 20/70.
L. + sph. 1.00 D. ⊃ + cyl. 5.00 D. ax. 85° = 20/70.

After wearing the glasses I then prescribed the visual acuteness became in a short time normal in the right eye, but it was a year or more before I succeeded by the "blinder-treatment" in bringing that of the left eye to normality. The headaches soon passed away after getting glasses, likewise the nightmare, and the appetite became good. Within a year the child was as robust and hearty as could be desired. At this time I first learned that for years prior to consulting me the child had been afflicted with nightly enuresis, for which all treatment had been in vain. This had continued up to

the day of instilling the mydriatic and applying glasses, but from that day it has never occurred once since.

The second case was not cured so suddenly, as the circumstances, age of the patient, continuance of the malady, etc., were not by any means so favorable. The boy was fourteen years old, had been afflicted with frontal headache "all his life," and had also had "fainting spells" for a number of years. There had also been a frightful nasal catarrh. Many physicians and surgeons had been consulted for nocturnal enuresis that had persisted from infancy, but all treatment and operations had been without effect. I found a high degree of compound hyperopic astigmatism and hyperphoria. After prescribing glasses the headache disappeared at once, and a partial ptosis of the left lid also disappeared. The wetting of the bed did not stop immediately, but did do so "very soon afterward." The patient disappeared from view, and it is only lately that I have learned that the enuresis stopped soon after getting glasses, and has not appeared since. The parents now ascribe the cure to the glasses, and I agree with them. As general treatment of the boy's health was also instituted by me, a legitimate suggestion might arise that the cure of the enuresis might have been due to that instead of to the stoppage of eye-strain. General treatment, however, had been previously thoroughly tried, but in vain until the ocular treatment was added. Taken in conjunction with other cases, I think that the reflex had its source in the eyes.

Another little girl, G. M., eight years of age, was brought to me December 14, 1889, with a history of headaches and of chorea during the preceding four years. The choreic affection was limited to the face and to the hands and feet. She was a very restless child, the hands and feet jerking and moving all the time, even in sleep, and "she talked in her sleep all night." Nocturnal enuresis had likewise existed for four years, and occurred every night. In this case there was difficulty in getting the child to wear glasses correcting the anisometropia. The chorea and other symptoms gradually ceased during the first month or two, but resumed again with their old intensity when she "lost her glasses" and was without them for two months. In June, six months after the first visit, I again took the case up, and prescribed other glasses, and they were now worn continuously. On October 2, 1892, with great patience, I succeeded in getting a still more accurate correction of the error of refraction (compound hyperopic astigmatism), a task of the utmost difficulty. But long prior to this date the enuresis, chorea, night-terrors, etc., had entirely disappeared. The nervous system had been so profoundly deranged that a sudden cure was not to be expected, but that the eye-strain bore a causal relation to the symptoms of enuresis and chorea, I have no doubt.

On March 12, 1894, a little girl, M. S., six years of age, was brought with a history of great nervousness, kicking about and crying out in her sleep, headaches, painful eyes, etc., and with nightly enuresis. From the day glasses were give her these symptoms disappeared "as if by magic."

On October 13, 1894, Dr. O. P. Rex sent me a child of ten years, H. S., who had headache a great deal, and painful eyes. I did not at this time know that the child had been afflicted with persistent noctural enuresis for years, for which all treatment had been in vain. I found the following vicious error of refraction:

R. and L. + sph. 4.50 D. ⌒ + cyl. 2.00 D. ax. 90°

This gave her only 20/100 visual acuteness, which, however, soon improved by wearing the glasses, until one eye had normal acuity in a few weeks, and the other by the blinder-treatment is steadily gaining. Headache, etc., at once disappeared, and from the day of applying the glasses the child never "wet the bed" again.

Besides these cases I have had others in which I am moderately certain that the eyes were the ultimate or a contributing cause of the affection under discussion, but in which the cure was either more slow or the etiology more suspicious, and I do not include them in this report.

MEDICAL PROGRESS.

Traumatic Ophthalmoplegia Improved by Operation.—Gutmann (*Berliner klinische Wochenschrift*, 1894, No. 41, p. 933) has reported the case of a man, thirty-six years old, who struck upon the head in a fall down stairs, suffering a fracture at the base of the skull. He was unconscious for three weeks, and when he came under observation, four weeks later, he presented complete left-sided oculo-motor palsy. There existed ptosis, and the eyeball was directed outward in abduction. There was no movement upward, and only so much of movement downward as could be effected by the fourth nerve. The pupil was dilated, and accommodation was paretic to the degree of three diopters. Slight movement inward was possible under great effort. In the hope of affording relief operation was undertaken. A fold of the upper lip, about 10 or 15 mm. (0.39 or 0.59 in.) wide, was made with its base about 3 mm. (0.11 in.) above the margin of the lid, the fold being freed at an elevation of between 10 and 15 mm. Above the brow a horizontal incision of from 15 to 20 mm. (0.59 to 0.78 in.) long was made. The skin between the upper margin of the fold and the incision above the brow was freed, and the fold slipped under the bridge of tissue thus formed, its upper margin being sutured in the upper wound. As a result the lid could be conveniently elevated and depressed. After waiting for three months, without noteworthy improvement in the activity of the internal rectus, this muscle was advanced, while the external rectus was freed. With the aid of lenses, + 3 D upon the left and + 1 D upon the right, the patient was afforded useful vision. In the course of a short time, however, the internal rectus induced a secondary strabismus convergens, so that now its tendon was divided. A slight degree of diplopia, however, persisted, for the relief of which a prism five degrees, base out, was directed. The movement of the eyeball upward and downward was, of course, not affected. Three years later the result was still found to be satisfactory.

Acetonuria Following Anesthesia.—The occurrence of several cases of fatal diabetic coma following anesthesia, led Becker (*Sitzungsber. d. niederrh. Gesell.*, Bonn., 1894; *Centralbl. f. Chirurgie*, 1894, No. 38, p. 895) to investigate whether or not anesthesia induces acetonuria in healthy persons. Seven hundred individual observations were made upon 188 anesthetized persons, with a

positive result in two-thirds of the cases. The acetonuria began as a rule several hours after the anesthesia and lasted for several days. The result was independent of special form of anesthesia, the duration of the anesthetic period, as to whether it was preceded or not by injections of morphin, or if attended by more or less excitement. If acetonuria existed before the induction of anesthesia, the condition was considerably intensified. In one case of ethyl-bromid intoxication enormous quantities of acetone were excreted in the urine. The conclusion is reached that small quantities of acetone circulating in the blood during and subsequent to anesthesia are not toxic, but that it remains to be demonstrated whether or not such an effect is produced in cases in which accidents happen. The occurrence of acetonuria is viewed as an indication of increased albuminous disintegration, and it is thought possible that in patients with profound metabolic disturbances acetonemia may prove a serious complication.

The Pathology of the Spinal Lesions of Divers' Palsy.—Sharples (*Journal of Nervous and Mental Diseases*, vol. xxi, No. 10, p. 636) has reported the case of a deep-water diver who, after descending to a depth of twenty-one feet and reaching the surface, complained of sharp pains in the arms and legs, and almost at once became unconscious, thus remaining for about one-and-one-half hours. The arms and legs were motionless, while some sensation remained in the arms, although completely absent in the legs. The tendon-reflexes in the arms and legs were wanting, as were also the skin-reflexes. The rectal and vesical sphincters were paralyzed. Symptoms of pneumonia appeared, cystitis and bed-sores developed, and death resulted from septicemia. Upon post-mortem examination evidence was found indicative of the occurrence of numerous hemorrhages in the cervical cord, with secondary softening and inflammatory changes affecting especially the posterior and lateral columns of the cervical and upper dorsal portions.

Gangrene of the Lung Following Pleuro-pneumonia.—Goelet (*North Carolina Medical Journal*, vol. xxxiv, No. 5, p. 217) has reported the case of a man, twenty-three years old, addicted to alcoholic excess, in which, on the sixteenth day of an attack of pleuro-pneumonia, the expectoration became offensive, and in a short time unequivocal symptoms of gangrene of the lung appeared. Under treatment with spirit of turpentine, 5 drops, fluid extract of eucalyptus, 5 drops, and beechwood creosote, 2 drops, every two hours, with frequent inhalations of the vapor of turpentine, marked improvement soon ensued, and in the course of a month the patient was able to sit up, and the temperature and bowels had become normal. At the inferior border of the left scapula there persisted an area of dulness on percussion, some three inches in diameter, in which the respiratory sounds were not to be heard.

THERAPEUTIC NOTES.

The Treatment of Diphtheria with the Antitoxin.—At a recent meeting of the Medical Society of Hamburg, Rumpf (*Münchener medicin. Wochenschr.*, 1894, No. 47, p. 938) reported the results obtained in the new General Hospital from the employment of Behring's antitoxin in the treatment of diphtheria. Twenty-six cases were thus treated, the clinical diagnosis being confirmed by the results of bacteriologic examination in all of the cases but one. Eighteen of the cases came under observation on the second day of the disease, 3 on the third day, and 5 later. All were in children between the ages of ten months and 12 years. Among the whole number there were 2 deaths (8 per cent.): 1 among the group of 18 cases, the other among the group of 5. Four of the cases were mild, 8 moderately severe, and 13 severe. Tracheotomy was performed in 7 cases; among this number were 2 fatal cases. The injections were made into the abdominal wall. In not a single instance was there any local reaction. In 11 cases the temperature appeared to be influenced by the injections; in 3 it rose, while in 8 it declined. In several cases the false membrane continued to spread. Albuminuria was found in 8 cases, in 1 of which it had not been present before the injection. The complete statistics for several months showed that there had been 91 cases of diphtheria in the hospital, with 11 deaths (12 per cent.). On bacteriologic examination of the kidneys and spleen from all fatal cases of diphtheria for a given period it was possible to isolate streptococci in 27 of 42 cases.

The Treatment of Anemia, Particularly Chlorosis, by Means of Sweating.—Künne (*Deutsche medicinische Wochenschrift*, 1894, No. 44, p. 846) reports the employment of sweating in the treatment of forty cases of anemia, including twenty-three of chlorosis. He employed a spring mattress, within which passed hollow coils, and over which was placed a support of wire netting, which was covered in turn with sail-cloth, and upon this the patient was placed and covered with woollens. By means of a spirit-lamp the air passing through the coils within the mattress is heated, and the warmth is in this way conducted to the patient. The application is thus continued for from an hour and a half to two hours and a half, after which the patient remains for a similar period in an ordinary bed. In the cases treated in this manner the number of corpuscles in the blood and the amount of hemoglobin rapidly increased, as a rule reaching four-millions of the former and 80 per cent. of the latter in the course of from six to eight weeks; at the same time there was appreciable increase in bodily weight. The subjective symptoms likewise receded, the menstrual derangement persisting longest. In conjunction with the sweating iron was also administered, and gentle out-of-door exercise was recommended.

Nitro-Glycerin for Singultus.—Griswold (*Journal of the American Medical Association*, 1894, vol. xxiii, No. 17, p. 646) has reported a case of obstinate singultus in an habitual alcoholic fifty years old, which, after the failure of other measures, was controlled by the administration of a pill of nitro-glycerin, gr. $\frac{1}{150}$, given at intervals of three hours. The hiccup ceased after the administration of the fifth pill.

For Intercostal Neuralgia.—

R.—Linimenti belladonnæ . . . f℥j.
Linimenti chloroformi . . . f℥iv.
Linimenti opii . . . . ad f℥iij.
Misce et fiat linimentum.
To be well rubbed over the painful area.

The Practitioner.

The Medical News.

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THE TREATMENT OF DIPHTHERIA WITH THE ANTITOXIN.

Serum-therapy is the logical outgrowth of the modern doctrines concerning the infectious diseases. The fundamental ideas underlying it have for a long time been appreciated, and we have to thank the bacteriologists for rendering of practical therapeutic value our knowledge concerning immunity. The present methods of producing immunity are merely modifications of those used by Pasteur in dealing with chicken-cholera and with anthrax, and by his followers with symptomatic anthrax and the pyocyanean infections. Pasteur's work was inspired, no doubt, by the success of Jenner's vaccination, the latter having been led to his experiments by observing the insusceptibility to smallpox of individuals who had survived the disease whether contracted from ordinary exposure or by inoculation, after Lady Montague had brought back that method from China.

In the earlier immunizing experiments, the living virus in some form, either in full strength, or weakened by heating or by the action of chemic agents, was introduced into the animals experimented upon. Some time later, Toussaint, Chauveau, Salomon and Smith, and Charrin, showed the feasibility of chemic vaccination, *i. e.*, they proved that the products of the bacteria causing a specific infection were capable, when injected into certain animals, of setting up in them immunity from the disease. Koch's treatment of tuberculosis consisted simply in the injection of a glycerin extract (tuberculin) of cultures of the tubercle-bacillus, and was really an attempt to produce immunity by the action of the chemic products of the bacilli.

It was early learned that immunity is not reached immediately after the introduction of the vaccinating substances into the body. There must first be a reaction on the part of the organism (the tuberculin-reaction is an example familiar to all) to the virus or toxin, after which a greater or less degree of immunity or lessening of susceptibility follows with the lapse of a certain time. The workers were agreed that the only way to arrive at a knowledge of the changes brought about in the body through an infectious disease which renders the animal subsequently insusceptible to the same disease lay in a careful examination of the tissues and fluids of the body before, during, and after the period of infection. The work of Fodor, Grohmann, and especially of Nuttall demonstrated conclusively the germicidal power of normal blood-serum, a property which the serum possesses in common with its globulicidal and antitoxic activities (Buchner). Whether these properties are possessed by the serum entirely independently of the cells of the body, or whether they are due to the presence of substances in the serum which have had their origin in the cells, are still disputed questions, though there can be but little doubt that the latter view will prove ultimately to be the correct one. It has been thought that natural immunity, or the natural resistance which an animal offers to an infectious agent is to be explained by the presence in the blood-plasma of these protecting substances (alexins).

Nuttall, in his experiments, proved that the blood-serum taken from an animal rendered artificially immune from anthrax was capable of killing a greater number of anthrax-bacilli than the blood-serum of an ordinary healthy animal. Héricourt and Richet demonstrated that the blood of a dog which had been inoculated with a culture of the staphylococcus pyosepticus, and had recovered from the infection, when injected into rabbits rendered these immune from the same virus. Behring and his co-workers went a step further, and showed that

blood-serum taken from an immunized animal was capable not only of producing immunity from the same infectious agent in another animal, but also of curing or "healing" an infection already in progress. In 1890 BEHRING established these facts for diphtheria, and soon after in association with KITASATO proved the same to be true for tetanus.[1]

The early skepticism with regard to the possibility of the production of immunity against diphtheria was attributable, no doubt, to the fact that diphtheria, like pneumonia, is a disease of which an individual may have more than one attack. As a matter of fact, a patient who has once had diphtheria seems after a certain time to be more susceptible than an ordinary person of being attacked by the same disease. The creation of an artificial immunity to smallpox or scarlet fever would have seemed more easily understandable than that of an artificial immunity from diphtheria or from pneumonia. Nor is it surprising that the same misunderstanding should have existed concerning anthrax until it was shown that animals could by artificial means be rendered immune from the disease. The conception of immunity had, therefore, to be widened considerably, and it seems necessary to make it a relative term; there are varying grades of resistance to infection, and varying lengths of time during which such resistance is valid, so that we can speak of a partial or a complete, of a temporary, or of a permanent immunity. In diphtheria and pneumonia it is probable that a surviving patient does not become immune immediately after the cessation of the serious symptoms; it would seem rather that changes gradually occur in the body, bringing about immunity until a period of acme is reached which lasts for some time, and after which protection against reinfection becomes less and less certain, until finally the individual is quite as susceptible, or even more so, than one who has never passed through the disease.

LOEFFLER was probably the first to render an animal immune to the virus of diphtheria. A guinea-pig which he inoculated with a small quantity of a pure culture of the bacillus recovered from the infection, and afterward proved to be resistant to repeated inoculations with virulent cultures. BEHRING, FRAENKEL, BOER, LÜBBERT, and WERNICKE have tested various methods for producing artificial immunity from diphtheria, among them vaccination with sterilized bouillon-cultures, with bouillon-cultures treated with iodin trichlorid, or with tissue or tissue-juices of animals sick or dead of diphtheria, and also by feeding with the toxins of the diphtheria-bacilli. BRIEGER, KITASATO, and WASSERMANN in the beginning of 1892 grew diphtheria-bacilli in thymus-bouillon, thinking, according to BEHRING, erroneously, that the thymus-extract exercised an antitoxic influence on the specific diphtheria-poison. They used the product thus obtained for purposes of vaccination. Results have taught, however, that immunity against diphtheria can be most successfully produced and can be carried to the highest grade by beginning with injections of much weakened and highly diluted virus.

The principal drawback to the application of serum-therapy to human beings has lain in the difficulty of securing a serum which holds the healing or so-called "antitoxic" substances in sufficient concentration. Large animals have to be used, and these must be inoculated repeatedly with gradually increasing quantities of virus or toxins until the serum has acquired a tolerably high degree of antitoxic activity. The preparation of the serum according to BEHRING'S method at Höchst-on-the-Main is carried on at considerable expense. The cultures, standard toxin-solutions and control-experiments are made in a well-equipped bacteriologic laboratory. Near by are the stables in which the larger animals, such as horses, cattle, and sheep are kept. For the preparation of the diphtheria-antitoxin young horses, healthy except, perhaps, for slight blemishes, are kept under observation for some days, after which the first injection of the virus is given. The animal receives subcutaneously in the region of the shoulder a quantity of an old bouillon culture of diphtheria-bacilli which has been nearly freed from organisms by filtration or simply by decantation; to this is added 0.5 per cent. of carbolic acid. The mixture is well diluted with water, and sufficient is injected to set up a mild reaction, the temperature reaching 39° C. or a little more. The animal loses its appetite, fails in weight, and there is edema in the neighborhood of the site of the injection. If the dose has been rather too large there may be paresis of the posterior limbs. It

[1] It would almost seem as if Mithridates, a hundred years before Christ, had some glimmerings of immunity and blood-serum therapy. His skill in devising chemic antidotes for deadly poisons is well known; but he went even further than this, for Pliny states that having noticed that the ducks of Pontus fed on poisonous substances, he used their blood to mix with his antidotes, so as to make these even more efficacious; *sanguinean anatum Ponticorum miscere antidotis quoniam veneno viverent.*

is sometimes difficult to estimate just the amount which will evoke the proper reaction, although control-experiments on guinea-pigs serve to a certain extent as a guide to the toxicity of a given injection-fluid. The injections must not follow one another too quickly; the animal is allowed to fully recover before a second dose is administered.

A horse, after receiving injections at intervals of from one to four weeks, becomes only very gradually immune, and it is not until the end of from four to six months that the serum has gained any considerable antitoxic power. The amount and strength of the virus are gradually increased as the immunizing process proceeds, so that finally an animal is able to bear several liters of undiluted toxin-solution. It is to be noted, however, that the antitoxic value of the blood-serum of the immunized horse bears no definite relation to the amount of toxin that has been introduced into his system. The antitoxic strength of the serum of the horse has to be tested from time to time by experiments on guinea-pigs, the serum being tried not too soon after an injection of the virus. When the desired antitoxic strength has been attained, from one to three liters of blood are drawn through a canula from the jugular vein into sterilized vessels, and cooled in the ice-box for from twelve to fourteen hours. The serum is then poured off, and after 0.5 per cent. carbolic acid has been added its exact antitoxic strength is tested upon animals. After the blood has been extracted the animal is usually hungry and thirsty. If it bears the blood-letting well the process may be repeated two or three times in the course of eight days, after which there must be a renewal of the vaccinations for several weeks.

(To be concluded.)

EDITORIAL COMMENTS.

Foot-ball Rowdyism, we had hoped, would have ended with the "Thanksgiving games," but worse than the fact, now come interminable defenses of the fact. The disgrace of the games was bad enough, but the defenses of the present-day game are so much worse that deaths (of which there have been one or two more since our last issue) and broken bones and sluggings and brutality are as nothing to it. The sly silences, the tricks of logic, the evasiveness, the wrigglings, "bluffs," bravado, and "whitewashings" of foot-ball would be most amusing if it were not the sorriest, the saddest spectacle of the day. The subterfuge and illogicality of calling this brutality "athletics" is unpardonable. Foot-ball and its defenses are, of course, as great crimes against athletics as against education. The spirits of the men who endowed institutions of learning for purposes of mental and moral training will yet rise from their graves and demand an accounting on the part of the modern holders of the trust. These will be found in time to have done education the greatest of all injuries, as they have by their own action largely lost the respect and confidence of the community, and in future rich men will, we fear, consider too well the clauses in their wills that give money to institutions for the discouragement of intellectual and scientific athletics and for the encouragement of the intercollegiate foot-ball variety. For a time, it is true, the "student" is the master, and the professor is his devoted flatterer and servant.

But for a time only. Luckily enough, there are signs that in the colleges there are still left some lovers of true athletics and of true education. They have too long kept still in face of the noisy degraders of both. Luckily enough, also, the "common people" have not also lost their heads. Everywhere mothers and fathers and guardians are looking about them for colleges whose chief aim is not to advertise their "educational" institutions by foot-ball matches. Mothers have been known to go on the "gridiron" and take their sons off from the fire. In the last fifteen years the growth in the academic department of Yale has been from 612 to 1159, and in the scientific department from 190 to 665. In Harvard, in the same time and in the respective departments, it has been from 843 to 1667, and from 37 to 320. Thus the growth at Harvard has been much greater than at Yale, and yet during the same years Harvard has won but a single foot-ball game with Yale and only four boat races. Thus the very fundamental premise of foot-ball logic is a proved fallacy. Still another sign of coming sanity (would there were more) is the public announcement by one great institution (Pennsylvania) that would-be players must henceforth be "amateurs, bona fide students in good standing, of one year's residence at the University, and who have passed the annual examinations upon a full year's work." But how soon shall we hear of the greatest scholar being honored by his college and by his fellows, as to-day is the flattered, bepictured, and bepraised hero of the gridiron? Despite the "athletic" craze in England, the senior wranglers are the most honored of the children of the universities. But who is most honored with us? The nation that values brawn and brutality more than intellect and learning will assuredly get what it wishes. But will what it gets be the best thing for it, or for civilization?

The Removal of Foreign Bodies from the Cornea.—Mechanics and workmen have learned from oculists (who should have taught them better) the method of removing foreign bodies from the cornea by "picking them out" with some sharp or slightly blunted metal instrument. In every factory or workshop every day, and often many times a day, it occurs that pins, knives, etc., are thus blunderingly used, frequently with great injury to the cornea, with the resultant formation of corneal ulcers, keratitis, iritis, or at least, leucomata. All text-books of ophthalmology advise the use of the "corneal spud" for removing such particles, and every young physician supplies himself with the instrument. But it is the most outrageously ill-adapted for the purpose conceivable. It is impossible for any patient to hold the eye still enough to permit any hand thus to remove a

partly-imbedded grain of sand, or emery, or what-not, without wounding the epithelium of the cornea. For this purpose a rigid tool is absurd, and a rigid metal instrument is the acme of absurdity. Every physician should teach workingmen how easy it is, and how free from any danger of injury, to remove the great majority of foreign bodies on the cornea with a simple wisp of cotton. Any particle not thus removable should not be sought after with pen-knives, awls, pins, or spuds, but the patient should be sent to a physician. Twist a little wisp of absorbent cotton, having long fibers, upon itself until the fibrils are well caught, but are not too densely packed, upon each other. Fold the roll upon itself and grasp it half an inch from the rounded or curved extremity. The eyelids are held apart by the fingers of the left hand, and the patient instructed to look in such a direction as to bring the foreign body into view. By delicate, though firm pressure, the wisp of cotton is brushed, not too quickly, across the cornea, or it is given a slight twist or screw-like movement when deftly pressed against the cornea. Almost invariably the dust-particle is removed at the first trial, being entangled or caught by the fibrils of the cotton. Cocain, blepharostat, spud, time, labor, and injury, are all dispensed with and happily spared. The procedure may not be for the commercial advantage of the specialist, but it is worth more to the world than seven "original researches" and prize-essays.

Great caution is needed in the matter of supply of the antitoxin of diphtheria. Analyses have been made of some samples in the market, and, while these have been found harmless, they have also been shown to be absolutely inert. A report is current that ARONSON has separated the active principle from the serum, and that he is "working in association" with a noted firm of chemists which is proceeding to patent the invention. Should such an outrage prove true, it will be a great scandal to medicine. The *New York Herald* has started a subscription, itself leading off with $1000, to provide serum for the poor. The lay public and the newspapers should leave this matter in the hands of the medical profession. Such a movement as that of the *Herald* can only bring harm in the long run. In the present condition of the public pulse, and with the infinitesimal amount of the antitoxin obtainable, it can have no other effect than to enormously enhance the price of what serum is to be had. Moreover, it is by no means certain, despite all that has been reported, that the agent is of so great therpeutic value as it is considered to be. Perhaps the whole thing may prove a failure. Above all, let us have no silly or insane haste, and no debasing commercialization of the means of treatment. Let science and professional experiment dictate and guide, and let us wait until the assurance and the guidance is beyond all doubtfulness and deceit.

CORRESPONDENCE.

CASTRATION FOR THE CURE OF HYPERTROPHIED PROSTATE.

To the Editor of THE MEDICAL NEWS,

SIR: The evidence summarized in my communication on page 664 of this number of THE NEWS obviously and amply justifies the suggestion made by me last year, and which was not made without hesitation. Having observed with disapprobation the undiscriminating assaults of some extremists upon the urethra the tubes, and ovaries, and more recently upon the appendix, I did not want to be responsible for a similar attack upon the testicles. I therefore took pains to say that I had as yet arrived at no definite conclusions, but was still seeking further light on the subject, knowing that the step from experiment to operation is and should be a long one, and feeling the responsibility involved in proposing any new operation, especially one of this character, easy of performance, with a low mortality and intended for the relief of a condition of enormous frequency. , This appears to me to have been a proper attitude, but Mr. Mansell Moullin has recently twice gone to the trouble of calling attention to the way in which I introduced the operation, each time coupling his remarks with the statement (made by him once before) that he suggested it to a patient in November, 1892. If his motive for this thrice-repeated assertion is the apparent one of a claim of priority of thought, it would be easy for me to establish the facts that I told Dr. John S Billings, of Washington, my views on the subject in the early summer of 1892, and that I outlined my experiments and instructed my assistants in regard to them in October of the same year. This would antedate both Mr. Moullin's "suggestion" and Ramm's operations. But these are puerilities. I believe that the surgeon who, before submitting his patients to a hitherto untried operative procedure, seeks the criticism of his colleagues, occupies a sounder position than he who, with neither experimental evidence nor professional backing, bases his advice on what, in this instance, must have been little better than guesswork. As I have already said, I have no wish to claim operative priority, and the question of vague suggestions to anonymous patients is too insignificant to merit attention. But I would like to be credited with having been the first to undertake a series of experiments to determine the effect of castration on the prostate, and the rapidity of that effect, with a view to the therapeutic value of the operation, and then with having, with what still seems to me proper caution, presented for the first time the whole subject to the profession, with the evidence upon which my suggestion was based. The operation appears to have come to stay, and in view of the wide field which it may some day occupy, it is not unnatural that I should desire to have my relation to its introduction and adoption kept straight as a matter of record. I am, sir, yours, etc.,

J. WILLIAM WHITE.

1810 SOUTH RITTENHOUSE SQUARE, PHILADELPHIA.

NEWS ITEMS.

Albert Napper, the originator of cottage-hospitals, died on November 16th, at the age of seventy-nine years. He established the first cottage-hospital in 1859.

Medical Director John Mills Brown, U. S. N., retired, died in Washington, D. C., on December 7th, at the age of sixty-three years.

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ORIGINAL ARTICLES.

THE TREATMENT OF TUBERCULOSIS WITH YEAST-NUCLEIN.

BY VICTOR C. VAUGHAN, M.D., PH.D.,
OF ANN ARBOR, MICHIGAN;
PROFESSOR OF HYGIENE AND DEAN OF THE DEPARTMENTS OF MEDICINE AND SURGERY IN MICHIGAN UNIVERSITY.

(Continued from page 659.)

CASE I.—A. W., was born in Ann Arbor, of German parents, in 1869. His father and mother were living at the time the treatment was begun, and no member of the family had given any evidence of tuberculosis. He had been employed in a drug-store for nearly ten years, the last three years at Calumet, Michigan. For the past four years, possibly longer, he had been drinking excessively. Dr. Pomeroy, of Calumet, sent him to me about the first of April, 1893. At Christmas, 1892, he weighed 138 pounds. About this time his cough attracted the attention of Dr. Pomeroy, who examined his sputum and found tubercle-bacilli present in large numbers. During the first four months of 1892 the disease made rapid progress. During April the evening temperature ranged from 102° to 103°. The man took from one-fourth to one-half grain of morphin each night to allay the cough. Night-sweats were constant, profuse and exhausting. During this time he staid in doors, and the hygienic condition of the house in which his parents lived, and where he staid from his coming home until his death, was extremely bad. Situated on low ground, without cellar, heated by stoves, unventilated, and damp, it furnished a most unsuitable abode for the patient. I recognized this fact all the time, but being unable to change his habitation, I thought that the results, whatever they might be, would be interesting, inasmuch as I would learn what could be done under such unfavorable conditions. On the first day of May, 1893, I began the nuclein-injections, and I insisted that however he might feel, or whatever the weather might be, he should walk to my office, a distance of about half a mile, every morning, and that in good weather he should be out of doors as much as possible. On this day he weighed 113 pounds. The use of morphin and all other drugs was prohibited. The upper third of the left lung and the apex of the right contained small cavities. The cough was severe and the expectoration measured half a pint or more daily. During the first three weeks of treatment he was compelled to rest several times on his way to the office each morning. The solution used contained 0.9 of one per cent. of impure yeast nucleinic acid, and 0.25 per cent. of potassium hydroxid. The injections were at all times made in the muscles of the chest. I began with three minims of this solution, and gradually increased the dose to eighty minims. The temperature, which was taken three times a day, with a tested thermometer, rapidly fell until May 12th, when it was normal all day. From this time until August 31st the maximum temperature was not above 99°, with the following exceptions: June 1st, he had a sharp diarrhea and an evening temperature of 100°. June 16th, he had an evening temperature of 101°, followed by a profuse sweat. July 13th and 14th he had a temperature of 100°, following unusually large injections of the nuclein. On July 21st his midday temperature was 101°, and the following day 100°. During these days he had no injections, but he took a solution of nuclein containing 0.5 per cent. alkali three times daily in tablespoonful doses. This was discontinued and the temperature became normal. August 4th and 11th, he had an evening temperature of 100° without any assignable cause. From August 21st to 25th he had a diarrhea, of unknown cause, and twice during this time the temperature registered 101°. August 29th, the temperature went to 100° after an injection.

The man's weight gradually increased, some weeks losing a little, others gaining, until August 31st he weighed 119 pounds. The cough and expectoration gradually decreased until my last August record on this point, which is as follows: "August 19th, examined the sputum. The amount is very small. He brought all that he raised this morning, not more than a teaspoonful. Before the treatment was begun he would cough and raise all night, unless he had a large dose of morphin. The sputum, however, though small in amount, is rich in germs."

I could not see that during this time there had been any marked alterations in the physical conditions, except that there was an absence of râles over the involved areas. The patient could now run two or three blocks without getting short of breath, but the cavities were still there. I should say that from May 12th to August 31st the progress of the disease was arrested or so modified that its advance could not be detected. I must admit, however, that I cannot speak with the confidence that some do concerning very slight alterations in the lungs as determined by physical signs.

From August 31st to September 12th I did not see the patient, although I provided for the continuance of the treatment through the kindness of my colleague, Dr. Clark, who did his duty thoroughly. But the patient took this time, as I afterward learned from his mother, to go on a protracted spree. She reported that he was frequently out at night until very late hours, and that more than once he came home intoxicated.

After my return he had only a few treatments, and some weeks passed without my seeing him. Late in October, the sickness and death from typhoid fever

of another member of the family depressed him very much. He began the use of morphin again, and a return of the high temperature, frequent cough and abundant expectoration showed the rapid progress of the disease. The last injection was given September 29, 1893, and he died March 17, 1894.

Just how much of the temporary improvement which accompanied the nuclein-treatment was due to this I cannot say. I am inclined, however, to attribute no small part of it to the temporary abandonment of bad habits and the getting out of doors, which took him for a considerable portion of the twenty-four hours from the unsanitary house. Moreover, open doors and windows during the summer reduced the ill-effects of his unsanitary surroundings to a minimum. I am glad to report this case, because it plainly teaches, in my opinion, that the sanitary conditions of the domicile and the habits of the patient are important factors in the treatment of tuberculosis. I believe that they are of much greater importance than climatic conditions.

CASE II.—F. M., a student from Kansas City, aged twenty-two; knew of no tuberculosis in the family. He had his first hemorrhage in 1891, and has had several recurrences since, the intervals becoming shorter. He had a quite profuse one six weeks before, and another the day before he first consulted me, which was late in April, 1893. He had weighed 125 pounds the preceding Christmas; his weight at the time of beginning treatment was 115½ pounds. Moist râles were heard over both lungs both anteriorly and posteriorly. No cavities could be detected. The sputum contained numerous tubercles half the size of peas. On crushing these between cover-glasses and straining, each was found filled with bacilli. The daily maximum temperature for three days before beginning the treatment averaged 100.3°. He had had a night-sweat every night for some weeks.

Treatment was begun May 1, 1893. The same solution in the same quantities as in the preceding case was used. The last treatment was given June 30, 1893. The temperature did not reach 100° after June 2d; it seldom went higher than 99°, and during the last four days it was normal continuously. The râles disappeared, and diminished resonance over the upper lobes was the only physical evidence of the diseased condition. During the treatment there was no gain in weight, the record for June 24th showing 114½ pounds. Night-sweats were occasional and slight during June. The cough and expectoration decreased, and some mornings during the latter part of June he failed to raise anything when asked to bring the sputum for examination; but when sputum was raised and examined, the bacillus was always found.

After leaving Ann Arbor he spent one week at the World's Fair, and then went home. A letter of July 10, 1893, states that his cough had been very infrequent, and the highest temperature observed was 99°, though it was taken somewhat irregularly. Later in the same month the young man, accompanied by his father and brother, drove in a light wagon from Kansas City to Boulder, Colorado, where a position had been tendered him, and where he has since lived. During this journey he lost some flesh, weighing 111 pounds after reaching Boulder. Since that time he has very slowly gained in weight, having increased to 125 pounds in June, 1894, when he visited Ann Arbor. I examined him carefully at that time, and could not detect any marked alteration in the physical signs from those observed one year before. He seldom coughed, sometimes not for several days, but when he did raise anything I could easily find the bacilli. He calls himself well, but the infection remains. He has had no nuclein since June 30, 1893. It is impossible to say whether or not the improvement would have continued, or whether or not the bacilli would have remained, had the treatment been kept up. To attempt to answer these questions would be to theorize, and this would be neither scientific nor profitable.[1]

CASE III.—H. H., a student from Silver Springs, N. Y., had been home during the spring vacation of 1893, and returned with a letter from Dr. Straight, of that place, to me, in April. He was twenty-four years of age, and his usual weight had been for some time 140 pounds, but the first day of May his weight was 127. His maternal grandfather was said to have died of pulmonary tuberculosis, but he knew of no other case in the family. He had never seen this grandfather. His father and mother were living and well. He had had a hemorrhage in the spring of 1892, but during the early winter of 1892–93 he had felt especially well. However, during the latter part of this winter he had felt depressed and weak. Late in March he had another hemorrhage. The upper lobe of the left lung was extensively involved, and contained a large cavity. The apex of the right lung contained a smaller cavity. The evening temperature averaged 100.4.° Cough and expectoration were free, and the sputum consisted of a purulent fluid containing numerous tubercle-bacilli. The patient was very weak, and should have been compelled to discontinue his work, which was that of a student in mechanical engineering, demanding considerable exertion, but he was to graduate in a few weeks, and insisted on continuing his labors. He had the same treatment as the preceding two, taking his last injection July 7, 1893. During this time he gained three and one-half pounds, and during the last week of his stay here his daily maximum temperature averaged 99.4.° There was no detectable alteration in the physical signs, and the sputum remained substantially the same. He then returned to his home in New York, where he took cod-liver oil and malt. For some weeks he sent me a daily record of his temperature. The average maximum was 100.5° for the week ending July 28th. After this he was for eight weeks in a sanitarium at Lakewood, New Jersey. He also sent me a partial record of his temperature while there, but

[1] Since writing the above I have learned that Mr. F. M. had several hemorrhages recently.

as he was taking antifebrin whenever the temperature rose to 100°, the record is of no value. On his return from the sanitarium to his home he sent me some of the sputum, in which I found no evidence of improvement. In February, 1894, he sent to me for some nuclein to be used by Dr. Straight, but a letter from the doctor told me he regarded the case as hopeless. However, he did use the nuclein for some weeks, but the disease progressed, and death occurred October 1, 1894. I do not believe that the nuclein could have been of any material benefit in this case had it been continuously employed.

CASE IV.—Dr. M., aged twenty-six, consulted me June 21, 1893. At my request he wrote at that time the following short history of his case: "In February, 1892, I was not feeling well, and attributed this to the want of exercise, as I was closely confined in the laboratory, but had no symptoms to attract attention to the urinary tract. One day, while examining various urines, I accidentally discovered pus in mine. I took boric acid, then salol, pichi, and lastly buchu, without effect. Stone was suspected, and Dr. Nancrede passed a sound with negative result; but after the sounding the urine became almost normal, and remained so for several weeks, then gradually became as cloudy as ever. In July, 1892, Dr. Warthin discovered tubercle-bacilli in small caseous masses deposited in the urine. I then took a capsule containing one grain each of quinin and iodoform and one-thirtieth of a grain of strychnin sulphate, three times daily, from August, 1892, to February, 1893. I took also during this time six bottles of malt. During August and September, 1892, I used injections per catheter of iodoform in oil, but this set up such a violent inflammation that I desisted from all local medication. In February, 1893, my appetite completely failed, and thinking that the iodoform caused this I discontinued it. Then I began hypodermic injections of iodin and gold, taking at the same time about two ounces of cod-liver oil per day. I took during February, March, April and May, 1893, about sixty injections of iodin and forty of gold, ten minims in each injection. The cod-liver oil became nauseating, and had to be discontinued, after having taken about one gallon in seven weeks, and gaining seven pounds. My weight when bacilli were discovered in July, 1892, was 119 pounds; in September, 124 pounds. After taking the cod-liver oil my weight reached 131, but soon fell after discontinuing the oil, and now it is 122. I have never had night-sweats, or rise of temperature. My appetite is good, but my bowels are constipated. The local symptoms are scarcely noticeable, but there are slight irritation and pain in the perineum on urinating."

A few days ago I wrote to Dr. M., who is now practising in Nebraska, and asked him to give a short synopsis of his case from beginning the nuclein-treatment to the present time. I insert his answer without alteration:

HEMINGFORD, November 16.

"Yours of the 16th instant to hand this morning, and I enclose an account of my past and present condition. I keep nuclein on hand all the time, and it promptly relieves any vesical irritation. I have used it with marked benefit in two cases of pulmonary tuberculosis—one is now quite well, the other is dead. I used it with good effect in several cases of acute naso-pharyngeal catarrh. My own health I consider as fully restored. On June 21, 1893, I had first injection of nuclein, about 5 mg. On June 22, 23, and 24 I had increasing doses, and June 25 had 25 mg., which caused severe local inflammation, chill and fever.

On June 28th, I had another small injection. On June 30th I went to Manistique, Mich. My weight then was 121½ pounds. On July 12th I began the use of nuclein, 4 c.c. per day hypodermically, and continued for four weeks, when I weighed 124½ pounds. At this time I had a severe attack of diarrhea. On August 18th I received more nuclein, which I used as before until about September 12th, when I left Manistique and went to Chicago for two weeks. On September 26th I returned to Ann Arbor and again used nuclein hypodermically, from 6 to 12 c.c. per day. On October 4th I commenced injecting directly into the bladder about 2 oz. nuclein plus 2 oz. normal saline, after first washing out the bladder with normal saline solution. My weight was 119 pounds. I had so much irritation of the bladder that I had to take tincture of hyoscyamus constantly. I injected nuclein hypodermically twice a day and into the bladder once or twice a week till about November 26th. I used only vegetable diet. My weight was 123½ pounds. I had to discontinue injections into the bladder on account of irritation. I had much stomach-trouble, and on December 23d I weighed 118½ pounds. On December 23d I discontinued all injections and took nuclein only by the stomach, about 3 or 4 oz. per day. I took also iron and ergot for two weeks. I changed diet from vegetable to chiefly proteid food, and took a little cod-liver oil, which disturbed the digestion. On January 6, 1894, I felt much better. Irritation of the bladder had ceased, digestion was much improved, and my weight was 120 pounds. On March 14th, the bladder was very irritable, and incontinence of urine was very troublesome. I had to use a rubber urinal. I used nuclein hypodermically and also injected it into the bladder. I took uva ursi for vesical irritability. On April 4th I left Ann Arbor for Nebraska. The bladder was very painful, and urine could not be retained for more than two or three hours at any time. My weight was 118 pounds. On June 15th I had improved very much. I have used altogether four gallons of nuclein-solution, mostly injected into the bladder. I had no incontinence and very little irritation of the bladder. The urine still contained pus. My weight was 125 pounds. On July 27th I had a severe attack of acute cystitis, lasting three weeks, and I passed a small phosphatic calculus about a quarter of an inch in diameter, after which the cystitis rapidly improved and soon ceased entirely.

November 19th. Since July I have steadily improved, and have used no treatment of any kind except an occasional injection into the bladder of an emulsion of iodoform. I have no incontinence and scarcely noticeable irritation. I am feeling

better generally than during any time the past ten years. I am heavier than for twelve years and have gained 7½ pounds in the past two weeks. The urine is still slightly cloudy, mostly from mucus, as there is little pus. I sent a sample to Dr. Warthin last week to be examined for tubercle-bacilli.

A. L. Muirhead.

Dr. Warthin reports that he could find no tubercle-bacilli in the urine.

Case V.—G. T., aged twenty-two, first consulted me in October, 1892. At that time he had considerable irritation at the neck of the bladder, frequency of micturition, and a deposit of blood in the urine. He was sent to Dr. Nancrede with the request that he be sounded for stone. Dr. Nancrede failed to find a stone and suggested tuberculosis. Examination showed tubercle-bacilli abundantly present in the urinary sediment. Salol, quinin, iodoform, and other remedies were tried, both internally and by injection into the bladder, but the progress of the disease was in no wise arrested. In the spring of 1893 T. went to Colorado. He remained in the West, in Colorado and New Mexico until the first of April, 1894, when he returned to Ann Arbor to try the nuclein-treatment. Evidently his stay in the West had not retarded the progress of the disease. When he went West the disease was confined, so far as the symptoms indicated, to the bladder. On his return the left kidney formed a tumor as large as the head of a newly-born child, and could be plainly felt through the thin walls. Nearly every day he was compelled to take morphin in order to allay the severe pain due to the passage of tuberculous masses from the kidney to the bladder. This pain came on in paroxysms, and often seemed as severe as that due to the passage of calculi along the ureter. The urine contained a large amount of pus and blood, in which tubercle-bacilli were easily detected. Sleep was often prevented by the pain. With the exception of the bladder and kidney there was no evidence that other organs were involved in the tuberculous process.

The nuclein-injections were begun April 12, 1894, and with a few exceptions they have been continued daily from that time to the present writing (November 20). A one-half per cent. solution was used until about the middle of October, since which time a one per cent. solution has been employed. Ten minims constituted the first dose, and the amount was rapidly increased to eighty with the weaker solution and forty with the stronger. The injections are made deeply into the muscles on each side of the spine, over the kidneys. There is no evidence of enlargement of the right kidney, and the greater number of the treatments have been given on the left side.

The greatest weight reached before his illness was 132 pounds. The decrease was gradual and constant to the time of beginning the treatment, when he weighed 114 pounds. Since beginning the treatment the weight has steadily increased and is now 138 pounds. The temperature at first often reached 102.5° and sometimes 103° in the evening. It has not been above the normal since early in October. The urine will be wholly free from sediment for several consecutive days, and then there will be a little pus in which the bacilli can be detected. There is still some undue frequency of micturition, and at times a sensation that the bladder has not been wholly emptied at the close of the act. The kidney has decreased in size but is still abnormally large. There has been no pain from the passage of tuberculous masses through the ureter since the latter part of May. Of course, it is possible that the disease may extend again. I shall not call this a cure until the urine becomes permanently normal, and this may never happen. But even should this not occur, the history of the case is unique.

Case VI.—This case is reported out of order chronologically, in order to bring together the cases of urinary tuberculosis which I have treated with nuclein. R., a physician, practising in Wisconsin, ordinarily very robust and weighing about 200 pounds, aged forty-three years, had not been feeling usually vigorous for some months, and had lost about 15 pounds. In February, 1894, he noticed traces of blood in his urine. Some of this was sent to me for examination. The tubercle-bacillus was detected and a guinea-pig was inoculated with the sediment. Twelve days later, Dr. R. came here, and both of us being anxious to know whether or not the microscopic finding would be confirmed by the inoculation-experiment, the pig was killed. There was a tuberculous nodule containing bacilli at the place of inoculation, and two smaller ones in the peritoneum. The next day, March 19th, the treatment was begun. There had been no elevation of temperature before this, and a general feeling of lassitude and the deposit in the urine were practically the only things to attract attention. Ordinary doses of nuclein were followed in this case by a marked elevation of temperature, so that after the first few weeks not more than 30 minims were given. The deposit wholly disappeared in a short time. The injections were continued up to August, since which time no treatment has been used. The lost flesh has been regained and the urine remains normal. Evidently, in this instance, the disease had not progressed very far.

Case VII.—Mrs. Z., came to me June 25, 1893. Her condition was bad. She had a large abscess from pyosalpinx, from which an umbilical hernia resulted. The left lung was involved throughout its entire extent and contained a large cavity in the upper lobe, and the upper lobe of the right lung was consolidated. She had been treated for some months with injections of gold and iodin. Her weight was 117 pounds. The treatment was begun June 25, 1893, and was continued to September 19th of the same year. Although there was some slight gain in weight (to 123 pounds), the disease steadily progressed. In September she went to Arizona, where she remained until June, 1894, when she returned to Ann Arbor, and, failing constantly, died early in September.

Case VIII.—Mrs. C., had been known to have "consumption" for two years. Her weight was reduced to 80 pounds, from 115 in health. Both lungs were filled with cavities. The evening tem-

perature ranged from 102° to 103°. Nuclein was used two or three times per week without the slightest effect.

CASES IX to XVI inclusive were all instances of extensive involvement and with cavities. A detailed report of these would not be of special interest. Suffice it to say that although there were in some marked evidences of temporary improvement while under treatment, the disease, on the whole, has progressed. I am not inclined to attribute the temporary improvement in these cases to the treatment. One who has had any large observation of this disease knows how often these false promises are made under all forms of treatment and even when no medication is employed.

CASE XVII.—A. W., a colored man, a student, who is paying his way through college by acting as general servant in a fraternity house, came to me for examination and treatment June 5, 1894. He was then twenty-five years old and weighed 140 pounds. In the spring of 1893 he weighed 154 pounds. He went to the World's Fair, and thinks that he "took cold there." He began to cough, lose weight, and have a "tired feeling." When he came to Ann Arbor in October, 1893, he weighed 148 pounds. He had been coughing quite violently for six weeks before he consulted me. His mother and one brother died of pulmonary tuberculosis, the first many, the second, three years ago. He had had sharp pains in the lower lobe of the left lung for some days, and this had caused him to consult a physician. The upper lobes of both lungs are filled with moist râles, and there is a pleuritic effusion on the left side. I am not sure about cavities; if any, they are small. The sputum was abundant, purulent, and filled with tubercle-bacilli. Guinea-pigs were inoculated with the sputum and died from tuberculosis in from four to six weeks. His evening temperature for some days after beginning the treatment was 100°. W. continued his duties as a servant and his studies until the close of the college year in June last. In July he went to the Oakland Hotel, at St. Clair, where he acted as waiter and general servant during the season. He returned to Ann Arbor in October and took up his work again. He has not lost a day from his work during this time. The conditions under which he lives are not the most favorable for one in his condition.

The injections were begun January 5, 1894, were continued until the close of the college year, were occasionally administered by Dr. Burtless at the Oakland during the summer, and were resumed by me on his return to Ann Arbor in October. From the beginning until October a one-half per cent. solution of nucleinic acid was employed, and latterly a one per cent. solution. The injections have all been made into the muscles of the back, and in amount have averaged about thirty minims.

He now weighs 140 pounds, just what he did when I began the treatment, though he continued to lose for a while, and reached the lowest point, 132 pounds, about three weeks after beginning the treatment. The pleuritic effusion disappeared in a few days, and the moist râles in as many weeks. His evening temperature fell about one degree, and has averaged about 99° ever since. The amount of sputum is now small, but it contains bacilli. There is lessened resonance over the upper lobes on both sides, but there is no evidence that the disease has progressed. He works hard, sleeps well, looks and feels well, but he is still infected.

I believe that in this case the progress of the disease has been retarded by the treatment—I will not say arrested, because so long as the infection remains there also remains the probability that it may at any time become progressive.

CASE XVIII.—E. W., aged twenty-three, a bookkeeper in a bank at Chelsea, Michigan, consulted me February 19, 1894. His mother had a cough for some years before her death, which occurred in 1886. His father is living and well. He has no brother or sister. In the spring of 1893 he weighed 140 pounds; his weight at time of first examination was 134 pounds. He had been coughing and raising abundantly since the last of August, 1893. He passed an examination for life-insurauce September 6, 1893. This, however, is no proof that he was sound at that time. The expectoration was very abundant, thin, purulent, and contained numerous bacilli. There was a small cavity in the upper lobe of the right lung, and an extensive pleuritic effusion upon the left. Some of this effusion was drawn with a needle and found to contain tubercle-bacilli.

Treatment was begun February 19, and has been continued with occasional interruptions until to-day, November 23. The kind and amount of nuclein-solution used were the same as in the preceding case. This young man has continued his work, getting at it early and leaving it late. In addition to his work, he has come to Ann Arbor, a distance of eighteen miles, daily, except Sunday, for treatment. This he has done through all kinds of weather, sometimes waiting until late at night for the return train. Surely these conditions have not been most favorable.

In this case the pleuritic effusion was very slow in disappearing, and to-day there is diminished resonance over the left lung. I cannot see that there has been any material change in the upper lobe of the right lung. The sputum is not so abundant, but the relative number of bacilli has not been altered. The temperature varies with the amount of work which the patient does. When he is very busy, the evening temperature goes as high as 102°. When he has a day of rest it seldom rises above 99°. This has been the case all the time, though the average temperature is higher now than it was last February, and, judging by this more than by the physical signs, I think that the disease is slowly progressing. His weight now is 135 pounds.

CASE XIX.—Miss H., twenty-seven years old, a saleslady in a dry-goods store, consulted me December 31, 1893 Three years before she had weighed 146 pounds, had been gradually losing, and at the time of examination weighed 115 pounds. She had been coughing and raising "a little" in the morning during these three years. She had no night-sweats. There is no family history of tuberculosis.

The upper portion of the upper lobe on the right side was consolidated, and moist râles were heard over the upper lobe on the other side. The sputum was not purulent, but contained tubercle-bacilli.

The treatment was begun January 4 and continued daily until the middle of July, when it was given twice a week, and since the 1st of October once a week. The average daily maximum temperature was, during the first six weeks, 99.8°; then it gradually fell to the normal by March 5th, and since that date no elevation of temperature has been found, with one exception, although observations were made, with occasional lapses, three times a day. The germs in the sputum, which was tested once a week as long as there was any, gradually decreased, and the first record of "no tubercle-bacilli" was made March 28. None has been found since. November 14 Miss H. had quite a sharp attack of bronchitis, with a temperature of 101°, cough, and expectoration, lasting through three days. This sputum was most carefully examined for tubercle-bacilli, with negative results. The weight has gradually increased and has reached 126 pounds. Miss H. discontinued her duties as a saleslady from the beginning of the treatment until May 1st, since which time she has been at work. In taking the treatment she walked daily, without reference to weather, from her home to my office, a distance of about one mile, and back. Did I not know that her lungs had been infected I do not think that I would be able to detect any evidence of it from a physical examination.

CASE XX.—Miss W., aged twenty-three, first consulted me February 12, 1894. She is of German parentage. Her father's family was said to be "consumptive," though the father died three years ago of chronic nephritis. The mother is not robust, but has never been sick. She has one brother twelve years old, who is well. During the spring and summer of 1893 Miss W. did not feel well and declined in weight from 125 to 114 pounds. She went to the World's Fair in September, and while there she had frequent and exhaustive pulmonary hemorrhages. The physician called in at the time pronounced the disease tuberculosis. She was brought home and kept closely confined to the house for fear of another hemorrhage. This fear was realized December 31, when the flow of blood was quite profuse. From this to the time of my seeing her her movements were still more restricted. Such in brief was the history given me, and from it one would infer that the infection had occurred in the winter of 1892-93, but on baring the breast for examination of the lungs a large scar just above the clavicle on the right side was seen, and on inquiry I learned that some three years before a gland had enlarged, suppurated and discharged, and other glands as large as hickory-nuts were found in the same region. In all human probability these glands were tuberculous, and the patient had been infected much earlier than the history previously given would indicate. Moist râles were heard over the apex on each side. No cavities could be detected. The sputum was small in amount, very ropy, and not purulent. The tubercle-bacilli were numerous. Guinea-pigs were inoculated with the sputum and died of tuberculosis after from six to ten weeks.

I made it a condition of my undertaking the case that Miss W. should walk to my office, a distance of about half a mile, every morning. The treatment was practically the same as in the preceding case. During the first two weeks the highest temperature observed was 99.5.° This sometimes occurred in the morning, more frequently at noon, and very seldom at night. Since the last of February the temperature has never been found above the normal. The bacilli gradually decreased in numbers. The last found was on March 28, when three bacilli were found on four cover-glasses. The patient continued to raise a little each morning until about the first of July. Since then there has been no cough. The weight increased to 122 pounds. The enlarged glands have markedly decreased in size, but can still be felt. There has been no hemorrhage. There is impaired resonance over the apex of the left lung; the other seems normal.

CASE XXI.—Mrs. M., aged twenty-six, with one child, six years old, came to me November 15, 1893. She had been coughing and raising for a little more than a year. She had lost during this time about fifteen pounds. The sputum was small in amount, consisting principally of glairy mucus. Bacilli were found, but not more than half a dozen on each slide. The evening temperature stood quite uniformly at 99°. Mrs. M. had thirty drops of a one-half per cent. solution of nucleinic acid daily from the date mentioned to the last of June. Since that time she has had an occasional injection. The germs disappeared before January 15th, and have not reappeared, She weighs more now than she ever did, and there is no cough. The physical signs in this case were never sufficiently marked for me to attempt to define them, and after repeated examinations I could not positively say that there was any abnormality.

CASE XXII.—Mrs. R., a married woman, with three children, and who did washing for a living, came to me May 21, 1894. She had three years before weighed 140 pounds; then her weight was 106. She has done no washing, save for her own family, since I began to treat her, but she has done all of her own household work and has taken care of her children. She has walked to the office, a distance, during a large part of the time, of about one mile. The sputum in this case was at first abundant, but non-purulent. Bacilli were few. The upper lobe of the right lung was filled with moist râles. This patient has had about thirty drops of a ½ per cent. solution of nucleinic acid daily from the time of beginning treatment until the middle of October. The improvement was slow until recently, when it has progressed most rapidly. Since the middle of October she has had an injection every other day. The bacilli disappeared in July, and her weight is now 122 pounds. The cough has ceased, and there is no expectoration. No râles can be detected.

CASE XXIII.—Mrs. C., aged forty-five, a farmer's wife, and the mother of ten children, came for treatment May 17, 1894. She was coughing very much, but raised little. The sputum was non-

purulent, and contained but few bacilli. During the previous six months she had been reduced from 130 to 115 pounds. She had treatment from May 17 to July 7; none since. In June the cough ceased, and she has raised nothing since. She now weighs 135 pounds.

Case XXIV.—E. H., twenty-one years old, with no family history of tuberculosis, lived on a farm until seventeen years old, then went into a general merchandise store for two years. The past two years he has been book-keeper at Alexandria Bay, on the St. Lawrence. He has worked in-doors about sixteen hours per day. Four other employés of this firm have developed pulmonary tuberculosis. H. felt perfectly well until July 13, when he had a hemorrhage, losing about "a teacupful of blood." He quit work for three days, but had another hemorrhage September 3. He has had cough and night-sweats since the first hemorrhage. He came to Ann Arbor September 28, weighing 134 pounds. Cough and expectoration were slight; few bacilli were in the sputum. These had been detected by a physician at Alexandria Bay. There is slight dulness over both apices. This patient had in all thirty-four injections of a 1 per cent. solution of nucleinic acid. The cough and night-sweats disappeared after the twelfth injection. No bacilli could be found after this in the small amount of fluid sputum brought up. The weight increased eight pounds.

These persons had no other medication, with the exceptions already stated, beside the nuclein.

These cases will be sufficient, I think, to enable me to draw the following conclusions:

(1.) In pulmonary tuberculosis which has progressed to the formation of cavities, nucleinic acid from yeast will not produce a cure. Unfortunately, these are the cases that we are expected to cure. These are the cases in which any proposed remedy for the disease will be tried, and I wish to state here most emphatically that I do not claim anything for nucleinic acid in these conditions. Indeed, I know, probably better than any one else, of how little value this agent is in these cases.

(2.) Even when the tuberculosis is of long standing, and when the extent of tissue involved is great, *so long as secondary infection with pyogenic germs has not occurred*, the proper use of the remedy may *retard* (I do not say arrest) the progress of the disease.

(3.) In initial cases of pulmonary tuberculosis, when there is no secondary infection, and when the area involved is small and the resistance of the patient not too much reduced, the proper employment of this agent may produce at least a temporary cure. I say "at least a temporary cure," because none of these cases has been under observation a sufficient length of time for me to say that the bacilli will not reappear.

(4.) In the few cases of urinary tuberculosis that I report in this paper the results have been remarkably satisfactory.

The results that I have secured so far encourage me to continue the work. There is no reason for supposing that the nucleinic acid obtained from yeast has any properties superior in a curative way to the nucleins contained in other substances. The number of nucleinic acids is limited only by the kinds of cells in existence, and I shall compare others with this one.

The early detection of tuberculosis is now a possible, not to say an easy, thing, but it is a lamentable fact that to many practising physicians it is an impossible thing. This will be the case so long as our most popular and most numerously attended medical schools fail to give any adequate individual instruction in bacteriology. The sputum of every patient who raises any should be examined for tubercle-bacilli, and urinary sediment containing pus, blood, or much epithelium should be similarly tested.

I must not close this paper without mentioning another point: I am convinced, especially from my experiments on animals, that nucleinic acid, improperly used, may do harm. It acts, as I have elsewhere shown, by stimulating the organs that elaborate the polynuclear corpuscles, and these may be over-stimulated. Nucleinic acid fails to be of service unless these cell-forming organs respond. They may fail to respond on account of lowered vitality, or they may be paralyzed, as it were, by an excessive dose of stimulant. The agent is not one to be used indiscriminately. Already some physicians are supplying tuberculous patients with hypodermic syringes and solutions of nucleinic acid, and telling them to go ahead and treat themselves. Such practice as this may make the study of this subject result in a misfortune.

ON THE VALUE TO THE SURGEON OF ANTIPYRIN, OF MUSTARD, AND SUGAR, AND ON THE PREPARATION OF CERTAIN SURGICAL DRESSINGS.

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(Continued from page 664.)

ON THE USE OF MUSTARD AS AN ANTISEPTIC.

It has been long known to surgeons that mustard is a powerful deodorant, and among chemists it has been well and long known that the essential oil of mustard is a most powerful antiseptic. In fact, among some it has been classed as the most powerful of all. Years ago it had been my custom in teaching anatomy to use mustard as a deodorant upon the hands after working with anatomic material. After considerable use with it in this way I gained such confidence in it that later I did not hesitate to go at once from the dead-room, or from

a post-mortem examination, to operate upon the living patient, after having disinfected my hands thoroughly with this material. For several years it had been my custom to thus resort to mustard, until the vagaries of surgical fashion led me to discontinue it and to disinfect my hands with potassium permanganate, sulphurous acid, or other more unpleasant or irritating materials, of which I soon got tired and from which my hands used to more or less continuously suffer.

A year ago or more I was enabled to subject the mustard again to such a rigid test that it seemed to me sufficient to give it the highest place in professional confidence. It was my fortune to care for two cases of diphtheria, upon both of whom I operated, and from one of whom I myself contracted the disease. Both died, and upon the day before I became sick myself I went to the house to withdraw the intubation-tube that had been inserted the day before. The case had been malignant in its clinical aspects, and the mouth and pharynx were filled with horribly offensive material. Prying apart the jaws I succeeded in reclaiming my tube, and then the problem was to disinfect my finger. From this house I had to proceed at once to another patient, upon whom I was to operate for varicocele. I spent twenty minutes or more with hydrogen dioxid, and with alcohol, endeavoring to disinfect my hands, particularly my left index finger. Even after this time the odor still clung about it, and I would not trust it for any operative work, especially about the veins. Upon arrival at the house of my patient I called for some ordinary flour of mustard, and while washing my hands for the operation spent some ten or fifteen minutes in rubbing this mustard, made into a paste, into all the crevices and cracks about my hands and finger-nails. All odor was thereby at once removed. I proceeded with the operation as usual, and never had a more satisfactory result. The next day I was taken sick myself, which shows that there were about me at that time the germs of the disease, but that they did not cling to my hands. This restored all my early confidence and liking for mustard for this purpose, and since then I have used it practically to the exclusion of everything else both in my hospital and private work.

The object of this therapeutic note then is to publish the foregoing facts and to urge most strongly upon those who need antiseptics or deodorants to give mustard a thorough trial. In fact, the range of applicability of ordinary flour of mustard as found in the kitchen of every household is very large. The ordinary physician is often called upon to get his hands into material which is offensive and malodorous, and many are the expedients to which he resorts in order to rid himself of the tell-tale odor. After making post-mortem examinations, after removing decomposing placental masses, and cleaning out the uterus in cases of abortion, after opening various deep and fetid abscesses, after handling gangrenous cases, there is nothing that I know of so readily at hand and so effective as mustard. After handling infectious and contagious cases, like erysipelas, diphtheria, or anything else about which inheres odor or contagion, there can be no more satisfactory antiseptic than this. The circumstances under which it cannot be procured are most rare, and are simply those emergencies that preclude the use of any of the antiseptics generally in favor.

ON THE USE OF SUGAR AS AN ANTISEPTIC.

I have often been surprised to find how little the valuable preservative properties of sugar have been taken advantage of by the profession. The present note is intended not as a plea for its general and deliberate use, but to call attention to the fact that in it we have a valuable substance that may frequently be of service in emergency cases. Even in the backwoods, wherever men may congregate, there is virtually always some sugar to be had. If sugar will preserve fruit and meat and various other substances put up for domestic consumption, it will also preserve human flesh; and in the case, for instance, of a serious compound fracture, when nothing else is at hand, I have often suggested to my students that they use ordinary granulated sugar, which can be poured into an open wound, or which can be done up in a bag and wrapped around a wounded part, or which can be used in ways that will suggest themselves at the time. Dilute sugary solutions may serve as culture-media for bacteria; but neither pathogenic forms nor saprophytic organisms grow in concentrated solutions or syrups. Consequently, so long as a sufficient quantity is used, one need have no fear of harm from such a source. More than this, even in the deliberate care of patients when facilities are at hand, I have often resorted to sugar, particularly so in time past, when some of the older methods were more in vogue, and when it was still customary, for instance, to use a fracture-box. When used deliberately for this purpose it may be well to add and mix thoroughly with it a small proportion of naphthalin —a mixture that I first saw used in Luecke's wards in Strassburg in 1882. I shall never forget my first visit to these wards. Immediately upon entrance my nostrils were saluted by an odor to which they were previously a stranger. This, I soon learned, was due to naphthalin, which at that time was extensively used by Luecke. So pleasantly did the odor strike me, and so happy seemed the effects of its use, that I took some home with me, and was, so far as I know, the first to use naphthalin in this

country as an antiseptic in surgery. From time to time since then I have written of its virtues, and I still regard it very highly, while its relative cheapness speaks also strongly in its favor. A mixture of one or two per cent. of naphthalin with granulated sugar certainly enhances the efficiency, and I think will commend itself to any one who chooses to use it.

UPON THE EASY PREPARATION OF EFFICIENT SURGICAL DRESSINGS.

One of the problems with which I have to concern myself has been that preparation of dressings which should make them most portable and at the same time most reliably antiseptic. In the ordinary operating-case that one carries in going to a distance, either for emergency or deliberate work, he wishes to have everything that may be needed, and at the same time to have it in the most compact and portable form. For the past few years I have resorted to the following general expedients, some of which were suggested to me, or elaborated for me, by my former assistant, Dr. Meyer.

A collection of surgical needles, adaptable to any sort of a case, is put into a small vial with a screw-top, a little cotton being inserted in the neck of the vial before screwing the cap down. This bottle can be placed in the dry sterilizer or in an oven whenever needed, and so baked that its contents are absolutely sterilized. My catgut is wound in short pieces upon small pieces of glass tubing, two or three feet being wound around each tube. A quantity of both of these, prepared in the usual way, is then sterilized together by being put into a tightly-stoppered flask with alcohol, which is then boiled under pressure, the temperature being raised to that of boiling-water. A few of these rolls of catgut—and, by the way, silk may be prepared in the same way—are then taken out and put into little portable bottles full of alcohol, from which they are withdrawn as necessity requires. They are thus kept absolutely sterilized. My iodoform-gauze is cut into small strips, a little fruit-jar or similar flask filled with them, the top screwed down, and the whole placed in the dry sterilizer and baked. I also usually carry naphthalin-gauze —which is made from surgeon's gauze as it comes from the shop, cut into compresses of any desired size, and packed into a fruit-jar, at the bottom of which a teaspoonful or more of crystals of naphthalin is dropped. After the jar is filled with gauze and its top fastened down, this is put in the dry sterilizer and also baked. By the heat the naphthalin is volatilized and well dispersed through the gauze, which at the same time is absolutely sterilized. I carry in my travelling-case a saturated alcoholic solution of hydronaphthol, of which a little may be put into boiling-water, which will then dissolve all of it that it can take up, and in which solution the instruments may be dropped when they cannot be otherwise sterilized. My drainage-tubes and some small pieces of green silk protective are also sterilized and carried in strong antiseptic solutions, so that they may be utilized at any time when called for.

It is my custom frequently to anoint the parts after an operation with some unguent which shall prevent the dressings from clinging too tightly as they dry, by which comfort is enhanced at the time of the first redressing. For this purpose I ordinarily use albolene or one of the coal-tar preparations, which is put into little ointment-jars along with sufficient naphthalin to make an ointment of from 3 to 5 per cent. strength, and sometimes with a little essential oil to give it a pleasant odor. These jars of ointment are put in the sterilizer with the caps screwed down, are kept at a temperature of from 100° to 120° C. for an hour or two, by which their contents are absolutely sterilized, so that I have no fear in applying this ointment directly over the wound or upon the dressings that are to be applied to it.

These are little hints concerning practical matters, which, however, are of sufficient importance to justify their publication here, in the hope that by the simplification of the details of sterilization of dressings a more general adherence to the principles of *a*septic rather than of *anti*septic surgery may be stimulated.

MYXEDEMA AND ITS DIFFERENTIAL DIAGNOSIS FROM CHRONIC NEPHRITIS.

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(Continued from page 651.)

In the first place, we need to remember that edema occurs under two forms of nephritis in very different degrees. 1. In the acute form of nephritis with scanty urine of high specific gravity, large amounts of albumin, and many casts, when all the general symptoms are intense and convulsions are imminent, the edema is usually extreme. The face, body, arms, and especially the legs, are much swollen and pit upon pressure, and it is evident that the edema is governed not a little by gravitation, for it is more extreme in the dependent parts of the body —the feet, ankles, and legs, if the patient is up and about; in the back, if he is in bed. Now in myxedema, even when the swelling is very marked, it has characteristics entirely different from those just described. It affects the forehead as well as the face, it is as intense in the upper eyelid as in the lower, it never fails to cause a thickening of the bridge of the nose, and of the lips and tongue. In all these respects it differs from the edema of nephritis. It

is more intense over the masseter muscles and in the supra-clavicular spaces than anywhere else, forming pads of soft tissue almost like lipomata. These spaces are not often swollen in nephritis. It affects the surface of the body quite uniformly, but is more noticeable on the abdomen than on the back, no matter what the position habitually assumed. Nor is it all affected by gravitation. The legs are uniformly swollen all the way down, not particularly about the ankles or tibia, and the hands and arms are quite as much affected as the feet. The very soft parts about the genitals are not excessively swollen, as in nephritis. In fact, as a rule, the extreme swelling in myxedema is usually in the face and neck, and not in the feet and legs—just the reverse of the condition in nephritis. Finally, in myxedema there is no pitting upon pressure, and no evidence that fluid beneath the skin can be displaced by manipulation. Aside, then, from the fact that the the slow onset and gradual course of a case of myxedema contrast markedly with the acute and severe symptoms of acute nephritis, it is possible by an examination of the edema to differentiate between these two diseases.

2. But there is another form of nephritis that produces edema, viz., chronic nephritis with contracted kidneys, hypertrophied heart, and increased arterial tension. This is the form with which myxedema is most frequently confounded. An excessive amount of urine of low specific gravity, scanty traces of albumin, and a few hyaline casts are commonly observed in both diseases. In both the symptoms are of slow progress; in both cerebral and gastric symptoms are prominent; and in both the pallor and yellowish tint of the skin are known to occur. Here again it is to be remembered that the edema is entirely different in the two diseases. In chronic nephritis the edema is not very marked, but when it is present it is uniformly noticed about the ankles after standing, or along the tibiæ; it never affects the hands and arms; when it appears in the face it is under the eyelids, never on the forehead, lips, or tongue. In a word, it is located in dependent parts of the body, and is determined by gravitation, or it appears in the parts where the normal tissues are loose and where the subcutaneous tissue has spaces in which fluid can easily collect. The description already given of myxedematous swellings contrasts in every point with these particulars. Hence, it is evident that in the second form of nephritis, in which edema occurs, the examination of the patient should suffice to detect the differences from myxedema.

But there are many other points of differentiation. I have alluded to the color of the skin and the pallor as common to the two diseases. In myxedema the skin is remarkably dry and usually in a state of active desquamation. The patients have the appearance of having been recently powdered, and by rubbing the surface gently, scaly white particles of epithelium are easily brushed off. This condition of the skin is certainly not common, if it occurs at all in nephritis.

Again, in myxedema there is no suggestion that the skin is unduly stretched, as in ordinary edema, and it is not thin, and smooth, and flossy. While, as a rule, in myxedema the color of the skin is yellowish-white, all observers have noticed a bright-red blush over the cheek-bones, which sometimes gives the impression that the patients, who are usually women, have been rouged. This high color is not seen in nephritis.

The entire absence of perspiration in myxedema, the inability of the patient to get into a perspiration by any exertion or exposure to heat is another symptom not particularly noticed in nephritis.

The condition of the hair—thin, bristly, coarse, and dry—is characteristic of myxedema. Inquiry will also usually elicit the fact that from all parts of the body where hair appears there has been a marked falling of it, so that the patient may be noticeably lacking in it; in the axillæ or about the genitals, as well as on the head. In nephritis the growth of hair is not affected.

Lastly, it is to be remembered that the thyroid secretion has an important function in regulating the body-temperature, and that in myxedema there is a uniform depression of temperature, the thermometer registering only 97° or 97.5° in the mouth. Such a condition is not observed in nephritis or in any other disease. It is accompanied by a subjective feeling of cold, which is one of the most annoying symptoms to those who live in the North. It is one of the immediate results of the thyroid treatment that the temperature rises under the use of the extract. I have tried the extract in other diseases, and have never seen it produce this effect excepting in cases of myxedema. In cases of akromegaly, in which it seems to have a beneficial effect, it does not cause any elevation of temperature; and in a case of megalocephaly, in which it was very thoroughly tried to the extent of ten tablets daily, it had no such effect. It is by watching the temperature and the pulse that the proper dosage of the extract is to be determined in each case. It is better to begin with small doses, one tabloid (5 grains) daily, or 10 drops of the glycerin extract of Dr. Crary[1] daily, and gradually increase the amount, than to give large quantities and cause disagreeable symptoms. In the case here reported the cardiac distress caused by the extract was very marked, and could not be counteracted.

[1] New York Medical Record, June 17, 1893.

While in the case reported there were no mental symptoms present, I think it is right to call attention to the fact that a considerable proportion of the cases of myxedema suffer from hallucinations, from great mental depression, from defects of memory, and from decided inability to use the mind. Three out of the thirteen cases that I have seen were brought to me because of the mental symptoms. The type of derangement which is present in myxedema is somewhat different from that ordinarily seen in mental diseases. While there is a depression and a decided melancholic tendency, there are very rarely any delusions, and never the typical facial expression of melancholia; nor are there intercurrent periods of mental depression and self-accusation which often occur in melancholia. The patients do not wake early in the morning with the intense depression that is seen in that disease. In melancholia hallucinations are exceedingly infrequent, while almost all myxedematous patients when affected mentally will describe hallucinations of sight and, sometimes, of hearing, occurring frequently at night; animals and faces are seen, and voices are heard, yet, as a rule, these hallucinations are recognized as products of the mind; they are not firmly believed in, and they do not become the cause for excitement as in hallucinatory insanity.

The prevailing mental tendency in myxedema is toward a demented condition; the patients are stupid, dull, sit listless, doing nothing, prefer to be left alone, take no interest in their surroundings, and appear to be lacking in all spontaneous mental processes; yet even this form of dementia differs decidedly from the primary dementia or the terminal dementia of insomnia, for the patients can be aroused to thought, show few defects when excited to mental action, and none of the incoherence of speech which betrays a mind permanently shattered. The entire disappearance of all these mental symptoms is one of the gratifying results of the treatment with thyroid extract. The three patients to whom I have alluded remain in a state of mental as well as physical health so long as they continue to use the extract. It is not at all improbable that a careful search in the asylums of this country would result in the discovery of a number of cases of myxedema now supposed to be instances of chronic dementia, but really capable of cure.

The Treatment of Infectious Diseases with Antitoxin.—It is said that to Dr. Geo. H. F. Nuttall, formerly of Johns Hopkins Hospital, but at present attached to the Hygienic Institute of Hamburg, really belongs the credit of having established the principle upon which depends the treatment of infectious diseases with their respective antitoxins. The results of his observations were contained in a thesis presented for the degree of the University of Göttingen four years ago.

AN EPIDEMIC OF PARALYSIS IN CHILDREN, WITH A REPORT OF ONE-HUNDRED-AND-TWENTY CASES.[1]

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(Continued from page 625.)

CONCLUSION.

THE diagnosis is yet not free from doubt, as most diagnoses are which are based upon clinical considerations alone and unsupported by the results of pathologic examination. It rests between cerebro-spinal meningitis, multiple neuritis, and poliomyelitis, or a combination of the last two.

1. Cerebro-spinal meningitis may, I think, be set aside under the force of the facts already alluded to. Epidemics of this disease are common enough, and its general course is definite, with a special symptomatology. In the present case there was almost an entire lack of those symptoms, and there were besides manifestations which have never been noticed in epidemics of cerebro spinal meningitis.

2. H. Oppenheim, Berlin, in his work on *Diseases of the Nervous System*, emphasizes the view that poliomyelitis is due to an infective microörganism, and in the present epidemic there was much evidence pointing to the operation of such an agent. Medin, of Stockholm, reported at the Tenth International Medical Congress an epidemic of infantile paralysis, an account of which appears in the *Centralblatt für klinische Medicin*, September 5th, 1891. The cases numbered forty-four, and occurred chiefly during the months of July and August, but they were spread over five months in all. The disease appeared in children who were previously healthy and with no apparent cause. The initial symptoms were fever, somnolence, indigestion, diarrhea, or constipation and vomiting in rare instances. Paralysis now supervened, and the fever shortly subsided. In three cases there was facial monoplegia, and facial paralysis, and polyneuritis in five cases. Abducens paralysis was present in five cases, twice with ordinary poliomyelitis, once with polyneuritis, once with polio-encephalitis, and in one fatal case. On examination it was found that the nuclei in the pons and medulla corresponding physiologically and morphologically with the cells of the anterior horns of the spinal cord were affected. At the time of the meeting Heubner stated that he regarded the disease as an infective one. Henoch found the same difficulty which now presents itself, namely, the presence of cerebral symptoms.

There is every inducement to regard the present outbreak as of a similar nature. Clinically the

[1] An addendum received too late for insertion in the issue of December 8.—Editor THE MEDICAL NEWS.

course of the disease was the same as in poliomyelitis, as a reference to the cases makes clear. There was the initial feverishness, aching pains, abrupt paralysis of the nature commonly known as "infantile," and with a distribution highly characteristic. If it were not for the disturbance of the vagus one would have no hesitation upon clinical grounds in pronouncing the epidemic one of poliomyelitis. The mode of onset, the paralysis itself, the age of the patients, the season in which the epidemic occurred, the distribution of the paralysis, and the subsequent behavior of the muscles, all point to this disease. Besides, it is not uncommon to have cerebral disturbance in poliomyelitis, with convulsions and coma; even diplopia has been noted. In the cord of a child dead of this disease the lesion is not confined to the cells of the anterior horns; there may be, as I have said, a general hemorrhagic myelitis, and even obvious meningeal involvement. There may also be pain, referred occasionally to the course of the nerves, and simulating a peripheral neuritis. In an epidemic including so many cases it is not probable that they would all adhere to the usual standard, and it is to be expected that some would overflow into the class of neuritis or cerebro-spinal meningitis.

3. The evidence in favor of the outbreak being due to peripheral neuritis rests upon the disturbance of the vagus. But if one regards, with Gowers, "symmetrical weakness of the extensor muscles situated in the forearm, and in the corresponding muscles in the lower part of the leg," as the leading motor symptom, then it will not explain the present malady, since this condition was absent in far more than half the cases. Indeed, the paralysis was "characteristically random in distribution," that is characteristic of poliomyelitis; and Gowers further affirms that the nerve-trunks are sometimes probably inflamed in the latter affection.

Finally, one is driven to the conclusion that the cases constituting the epidemic mainly followed the type of poliomyelitis, but that in some there were elements suggestive of multiple neuritis, either as an independent affection or the common result of a common cause.

CLINICAL LECTURE.

MULTIPLE NEURITIS, WITH THE DEVELOPMENT OF UNILATERAL FACIAL PARALYSIS LATE IN THE COURSE OF THE DISEASE.

By J. T. ESKRIDGE, M.D.,
of Denver, Col.,
Professor of Nervous and Mental Diseases in the Medical Department of the University of Colorado; Neurologist to the Arapahoe County and the St. Luke's Hospital.

We shall study to-day the case of D. F., fifty years of age, colored, single, a male laborer, born in Kentucky, but who has been living in Colorado since 1872. As a child he was well and strong, and thinks he did not suffer from any of the diseases incident to early life. When two years old he had an attack of smallpox, and was ill about four months. At his thirtieth year he contracted a chancre. He has never indulged in alcohol to excess. During the last twelve years he has worked in damp places, and frequently contracted colds. Ten years ago the glands of his neck suppurated, and about that time he experienced numb and tingling sensations in the feet and legs below the knees. These sensations would pass away on exercising, but when at rest his legs would become stiff and painful. After suffering with these symptoms, which increased for some weeks, he had to quit work a week; he was then able to resume work, although for some months he was not entirely free from uncomfortable sensations in the legs and feet. Subsequently to this trouble he remained in good health until December, 1893, when, after working in a damp and cold place, he first felt numb and tingling sensations in his toes and in the anterior portions of the soles of the feet. In a few days these sensations had spread all over the feet, and extended up the legs nearly to the knees. About this time his ankles seemed weak, so that he could not stand without some support. As he expresses it, he "rocked on his feet." Within two weeks from the time the numb and tingling sensations were first experienced in the feet he found his legs were paralyzed from the knees downward. About the time the legs were first paralyzed he felt a burning sensation in his hands, especially in the palms, and a numbness in the fingers, and a week or ten days later his arms were paralyzed from the elbows downward. A few weeks after the paralysis became manifest he was troubled less from burning and numb sensations. From December, 1893, to March, 1894, he was treated for rheumatism. About the latter date a disagreeable tingling sensation, which later assumed a distressing burning character, appeared in the feet, and was worse at night and during cloudy and inclement weather. Similar sensory disturbances soon afterward manifested themselves in the hands, but to a less intense degree. He was admitted into the nervous wards of the Arapahoe County Hospital, August 11, 1894.

Examination.—He lies in bed with all muscles below the knees completely paralyzed. Foot-drop is well marked, with extreme plantar contraction, and toes flexed, the great toes being flexed to the greatest possible degree. By using considerable force I am able to dorsally flex the feet at right angles with the legs. The legs lie straight at the knees, and he can flex and extend the legs at these joints, but the muscular power is slight. Flexion and extension at the hips are fairly good, but the muscles that make these movements are rather weak. Moving the legs and thighs at the knees and hips causes some pain, or a drawing sensation in the calf and posterior thigh-muscles. Extreme wasting has taken place in all the muscles below the knees, and to some extent in the thigh-muscles. The greatest amount of muscular atrophy is found in the interossei of the feet and in the anterior tibial and peroneal groups. The trunk-muscles are nearly normal. Wrist-drop is present, with flexor contraction of the muscles of the hands and wrists. Both hands ordinarily lie in the wrist-drop position, yet with considerable effort he is able to extend the left wrist on a line with the forearm, but he cannot extend it beyond this point. Marked

atrophy is present in the muscles of the hands, most pronounced in the interossei and in those forming the thenar eminences. The muscles of the forearms are wasted, but to a much less degree than the muscles of the legs below the knees. The muscles of the upper arms are fairly strong, and present but slight wasting; the muscles of the shoulders appear normal; none of the muscles below the knees or elbows responds to the strongest faradic current from a large-sized Flemming battery. All these muscles show reaction of degeneration. The muscles of the neck, face, and larynx are not involved.

Sensory phenomena. Tactile sense, when tested by the contact of a feather, is lost on the feet and legs from a point about midway between the ankle-joints and knee-joints downward; the sense of touch is present down to a point about six inches above the ankle-joints; in the right hand and arm the feather in contact is not felt from a point four inches above the wrist-joint downward, and in the left, from a point about six inches above the wrist-joint downward, while a feather in motion can be felt over the greater portion of the backs of the hands and wrists, but is not perceived on the dorsal surfaces of the fingers, the palmar surfaces of the fingers and hands, and the anterior surfaces of the wrists, and the anterior surfaces of the arms from a point about two inches above the wrist-joints downward. Tactile sense is present and nearly normal over all other portions of the body. Pain-sense is present throughout the body, but is not normally acute in the areas of tactile anesthesia until the skin is pierced. Temperature-sense is lost all over the feet, delayed, uncertain, and lessened over the ankles and areas of tactile anesthesia of the legs, and much perverted over the hands, but not lost as in the feet. Localization-sense is greatly disturbed, especially over the feet, as a sensation produced on the leg is referred to the foot, and sometimes to the foot of the opposite side. Pressure-sense is disturbed more in the hands than in the feet. Joint-sense and posture-sense are present and about normal. Muscular sense is absent.

The knee-jerks, the plantar, cremaster, and forearm reflexes are absent; abdominal and iritic reflexes are present. Taste, smell, hearing, and vision are about normal. The internal and external ocular muscles, and an ophthalmoscopic examination show no abnormalities.

During the five weeks he has been in the hospital there has been a steady but rather slow improvement of his condition. The contractures of the flexor muscles of the feet, the legs below the knees, the hands and the arms below the elbows, were so great that we were compelled to give the patient an anesthetic before the deformities could be overcome. After this procedure the hands and arms were put on padded splints, and by means of adhesive plaster the feet have been kept forcibly dorsally flexed. The apparatus was removed every second day, allowed to remain off several hours, and the parts thoroughly masséd. By the end of two weeks we had pretty well overcome the contractures in the flexors of the feet and ankles, and since then sand-bags laid at the soles of the feet have been sufficient to keep the feet in proper position. We have not been so successful in getting rid of the contractures of the hands and wrists, but these are much less than when the patient entered the hospital. The splints are now kept on the hands and arms about half the time. The muscles will not respond to the faradic current, and in consequence this is at present valueless in the treatment. The continuous and interrupted galvanic current is the most useful form of electricity for nerves and muscles in this stage of the disease. His food has been as nutritious as the hospital affords, with abundance of soups, meats, and eggs. In the way of medicine, iron, arsenic, and strychnin have seemed most appropriate. To-day he is able to slightly flex and extend the right foot. No movements of the left foot have been regained. He is now able to extend both wrists. Tactile anesthesia is slightly less than when he entered the hospital. Peripheral paralysis of the left side of the face developed after the patient had been in the hospital two weeks.

Let us consider the nature of our patient's trouble. In the first place, I wish to call your attention to the marked symmetry of the disease, limited as it is mainly to the distal portions of the extremities; the failure of the muscles to respond to the faradic current, and changed reaction to the galvanic; the pronounced muscular atrophy with motor paralysis; loss of and disturbed sensory function. There are many diseases with which a case of this kind may be mistaken by the casual and superficial observer. The least likely is rheumatism, yet the patient tells us that he was treated during all of last winter for this affection. In the present instance only gross ignorance or criminal negligence would permit such a mistake. In rheumatism there sometimes occurs paralysis early in the disease, either of an inhibitory or hysterical origin; but this is rare, and it only lasts for a few days. I have seen one such case. The man was apparently unable to move a hand or foot, but the ankle-joints and knee-joints, not the nerves, were very tender, and were the seat of severe pain. Suspecting the character of the trouble, large doses of sodium salicylate were given, and within two days the patient began to move the hands and feet. Late in rheumatism there may be partial paralysis and well-marked wasting of the muscles below the affected joint in which adhesions have occurred, producing a condition known as arthritic muscular atrophy; but there is no loss of sensation, the affected muscles respond to the faradic current almost normally, the disease is not symmetrical nor limited to the distal portion of the extremities. The temporary paralysis in the early stage of acute rheumatism, and the arthritic muscular paralysis usually affecting one limb, apparently from rheumatic inflammation of a large joint, are about the only points of similarity between rheumatism and the symptoms presented by the patient before us, while the symmetry of his disease, the distal portions of the limbs being as a rule alone affected, the electric changes, the sensory phenomena, and the nerves, instead of the joints, being involved, are abundantly sufficient to prevent a mistake in the diagnosis if care and judgment are used in the examination and summing up of the case.

In poliomyelitis the absence of objective sensory phenomena and the symmetry of the paralytic symptoms serve to distinguish this disease from the one before us. Spinal pachymeningitis is attended with radiating pains from the spine, with involvement of the trunk-muscles and those of the upper portions of the limbs, with severe pain on moving the muscles of the back, and with incomplete paralysis and sensory loss, distrib-

uted irregularly, symptoms very unlike those present in our patient. In acute ascending paralysis the feet, legs, thighs, trunk, and arms become affected in the order named. The ataxic symptoms manifested by the man before us, with loss of the knee-jerk, has more than once misled careless observers to mistake the disease for locomotor ataxia, but the latter disease has shooting pains, prominent eye-symptoms, anal and vesical disturbances, absence of paralysis until very late, when it is incomplete, and wrist-drop and foot-drop are never present. There are many other points of difference, but these are the most prominent. Myelitis affects the anal and vesical sphincters, the muscles of the trunk up to the level of the spinal lesion, and when the lower portion of the cord is the seat of inflammation, anesthesia of the external genitalia and the parts around the anus is present. We can then exclude myelitis in this patient.

The character of the paralysis, the distribution of the anesthetic areas, the extreme muscular wasting and the well-marked electric changes which have taken place in the muscles, enable us at once to dismiss the suggestion of hysteria, an affection which should always be allowed to obtrude itself in the mind of every one when engaged in arriving at a diagnosis by exclusion in cases attended with paralysis and loss of tactile sense. We have left but one other affection, multiple neuritis, which will likely account for the condition of this man. The symptoms that this patient presents are typical of multiple neuritis. The symmetry of the parts affected is almost complete; the parts invaded are the extremities, in the arms below the elbows, and in the legs, principally the regions below the knees, although motor weakness is found in the muscles of the thighs, and to a slight extent in those of the hips, but no loss of sensation is found above the knees; the feet and hands are affected more than the forearms; wrist-drop and foot-drop, profound muscular wasting, with electric changes and absence of the deep reflexes—all go to make up a clinical picture the like of which is found only in multiple neuritis. When we call to mind that the vesical and anal sphincters have not been affected, and that the nerves were at one time tender and the seat of pain and distressing sensations, there seems to be no room to doubt the correctness of the diagnosis.

As the management of individual cases of multiple neuritis depends somewhat upon the cause of the inflammation, it will be well for us to inquire into the etiology of this man's attack. This man suffered from syphilis twenty years ago, but syphilis in its tertiary stages attacks mainly fibrous and connective-tissue elements. I have not observed, or seen the report of a case of typical parenchymatous multiple neuritis caused by syphilis. It seems to me that we may dismiss the consideration of the syphilitic poison as a causative factor in this man's case. The principal causes for us to consider in the present instance are diphtheria, alcohol, malaria, exhaustion, insufficient nourishment, gout, rheumatism, and exposure to wet and cold. In the absence of the history of diphtheria or involvement of the muscles of the iris and palate, and the long duration of the disease (diphtheric multiple neuritis running its course in two or three months), we are justified in excluding the effects of diphtheric poison. The patient has never been addicted to the steady or excessive use of alcohol; he has not been exposed to malaria for more than twenty years; his work has not been exhausting; he has been able to obtain plenty of nutritious food, and he has never suffered from gout, so that we may as well dismiss all causes first enumerated except rheumatism and exposure to wet and cold. His occupation during the last twelve years has necessitated his being more or less exposed to damp and cold, and undoubtedly the slight attack of nervous disturbance from which he suffered some ten years ago was of the same character as the present one (though much lighter). He tells us that he has never suffered from attacks of acute rheumatism, and that he enjoyed good health from the time of his attack, ten years ago, until the beginning of his present illness, in December, 1893. It is probable, then, that to exposure we must attribute the cause of his trouble.

The duration of the disease is variable. The diphtheric form, as a rule, runs the shortest course, convalescence in the majority of instances being pretty well established, so that the patient is able to walk about, by the end of the second or third month from the time the neuritis first became manifest. The alcoholic form is not infrequently slow in reaching its height. I have under my care at present a patient who suffered from neuritic pains, with absent knee-jerks, for eight months before the paralysis became so great that he was compelled to remain in bed. During the last two or three months of this period he was decidedly ataxic in the legs. In the majority of cases of multiple neuritis not due to diphtheria the disease is one or two months in reaching its acme; then it remains stationary for one, two, or three weeks, after which apparent recovery takes place in from a few to several months. It must be remembered that the muscular strength is not regained for several months after the patient is able to resume his duties. The parts that are first affected are usually the most seriously involved, and are the last to resume a normal condition. The legs, as a rule, improve before the hands and arms, although occasionally this order is reversed. The feet, and sometimes the hands, especially around the nails, remain hyperesthetic long after all spontaneous pain has subsided. Relapses greatly lengthen the course of the disease.

The vast majority of cases of multiple neuritis result in recovery. In a few cases the trunk-muscles, including the intercostals, are affected; then if the diaphragm becomes paralyzed, death takes place from failure of respiration. These are acute and rapid cases, and not infrequently end in death at the end of from six to ten days or two weeks. Cardiac failure in alcoholic and diphtheric cases sometimes causes sudden death. In a few the patient is worn out by pain, the annoyance of bedsores, and the presence of bronchitis. In such cases it is probable that the spinal cord is affected. In alcoholic cases, cardiac, renal, and hepatic complications may lend gravity to the prognosis. Mental failure is a common complication of the alcoholic variety of multiple neuritis, but it usually passes away during convalescence. Sometimes there is simple failure of memory for recent events, but in typical cases patients become delusional and conceive the idea that they go out each day and take long walks, although they may be so completely para-

lyzed that they are unable to stand or even flex and extend the feet.

The treatment in the early stage of the acute cases consists of rest in bed, protecting the extremities from changes in temperature by means of flannels (when there is pain the flannels next to the skin should be kept moist by frequenly wringing them out in hot water), warm daily baths, if they do not inconvenience the patient too much, keeping the bowels open, and giving a febrifuge when there is a rise of temperature. As soon as the acute stage has subsided, massage and electricity and the internal administration of strychnin, arsenic, quinin, and iron are indicated. The nutrition should be maintained throughout the course of the disease by means of good, nutritious food, of which animal food should form a large proportion during convalescence, and cod-liver oil may be added to the list of nutrients. Relapses may be prevented, as a rule, by protecting the affected parts from cold by means of flannels worn next to the skin. Massage should not be resorted to while the nerves and muscles are sensitive, but gentle rubbing of the limbs from the distal portions toward the body is often grateful to the patient early in the disease. It is doubtful how much the galvanic current hastens resolution of the nerves and muscles, but the nutrition may be partially maintained and extreme atrophy of muscular tissue prevented, by causing gentle contraction of the paralyzed muscles until the patient regains voluntary control over them. When the muscles readily respond to the faradic current this may be used, but the current should be no stronger than is necessary to effect gentle contraction of the most affected muscles. In the majority of cases the faradic current will not produce muscular contraction in the extensors of the wrist and the anterior tibial and peroneal groups. For all muscles that will not respond to the slowly-interrupted faradic current of moderate strength the interrupted galvanic must be used, taking care not to exhaust the muscles by prolonging the séances to too great a length, and effecting too vigorous contractions. From three to five minutes is long enough for each of the largest groups of muscles, and a slight muscular contraction is less likely to do harm, and is capable of doing more good than vigorous movements. Electricity for this purpose may be applied daily or every alternate day. It is your duty to prevent troublesome contractures of the flexor muscles of the legs and arms, with resulting deformity of the feet and hands, such as this man presents. This may be done by keeping the feet at right angles to the legs by meane of sand-bags placed at the soles of the feet, and occasionally placing the forearms and hands on padded splints.

I have nearly finished what I had intended to say about this case, but have not referred, except in the examination, to the unilateral facial paralysis. This has come on some nine months after the beginning of the attack of multiple neuritis. At my first visit to this patient there was no paralysis of the face, but about two weeks subsequently I first observed it. He had been lying near an open window, and the affected side of the face was exposed to a draught of air. In all probability it has no connection with his general trouble. It is a local neuritis and does not modify the prognosis at all. Facial paralysis during the acute stage of multiple neuritis would, as a rule, excite grave apprehension, as it would indicate that the trouble was affecting nerves not usually involved in this disease, and fear of cardiac and respiratory failure might justly be entertained.

CLINICAL MEMORANDA.

TYPHOID FEVER.

A Report of Three Cases Treated by the Chlorin-Solution Recommended by J. Burney Yeo, M.D., of London, England.

BY J. MOSELEY KERR, A.M., M.D.,
OF COLUMBUS, OHIO.

IN the treatment of typhoid fever one favors the Brand method, while another advocates the ingestion of large quantities of water, thinking to drown out the offending bacillus. Some place all their confidence in a mixture containing carbolic acid, others in turpentine, and so on. Many of these methods, while successful in some cases, are either too cumbersome or else are too uncertain for general practice.

Always having been interested in this subject, I was at once attracted to Dr. J. Burney Yeo's article (June number of the *American Journal of the Medical Sciences*), in which he advocates the use of a chlorin-solution, a rigid milk-diet, and perfect cleanliness, not only of the outside of the body, but also of the inside.

The solution as made by him is as follows: Into a twelve-ounce bottle put thirty grains of potassic chlorate and pour on this sixty minims of strong hydrochloric acid. A greenish-yellow gas is at once liberated. Close the bottle with a cork and agitate the mixture gently until the bottle is filled with gas, then pour water into the bottle, little by little, closing the bottle and shaking well at each addition until the bottle is half filled. Add to this mixture from twenty-four to thirty-six grains of quinin, and then fill the bottle with water. Syrup of orange-peel can be added to disguise the taste. The dose Dr. Yeo recommends is one ounce from every one to four hours according to the severity of the case. His methods are so plain and easy, and his reasoning so clear, that I decided to adopt his suggestions at my first opportunity. He urges very strongly the early administration of this combination, before the bacilli have had a chance to spread or do their destructive work.

CASE I.—H. B., was a little girl, three-and-a-half years old, of good family history, well-nourished and of good previous health. The child took sick gradually, and for several days the only symptom noticed by the parents was an unusual listlessness.

I was not called until July 23d, after the child had been complaining for about a week. I found her somewhat stupid, complaining of pain in the epigastric region, the bowels constipated and occasional vomiting. The temperature on the first day seen was 102.8° in the morning and 103.6° in the afternoon. It was not until July 27th that I made a positive diagnosis of typhoid fever, when I ordered the patient placed upon an entire milk-diet, and a teaspoonful of the chlorin solution, to be administered every two hours. The bowels were watched carefully and kept open by enemata and occasional doses of calomel. The temperature from the time this solution was commenced ranged as follows: July 27, A. M.,

101.2°, P.M., 103°; July 28, A.M., 100.2°, P.M., 102.4°; July 29, A.M., 101.2°, P.M., 102°; July 30, A.M., 99.8°, P.M., 100.2°. It kept gradually falling until by the 5th of August it had reached normal both morning and evening, the morning temperature having been normal for several days. The child convalesced nicely and made an uninterrupted recovery.

CASE II.—A. A., was a young man, nineteen years old, a laborer, of good family history, with comfortable surroundings, and who had always enjoyed good health. He was taken sick August 11th with a severe headache, loss of appetite and marked drowsiness. I was not called until the 15th, when in the morning his temperature was 103.6°, the pulse 106, and respirations 20. In the afternoon his temperature rose to 104.4°. The symptoms pointed so clearly in my mind to typhoid fever that a bottle of the chlorin-solution was ordered, a teaspoonful to be given every hour. The only nourishment he received was diluted milk in quantities that seemed to be easily assimilated. During the first and a portion of the second week there was considerable delirium and several mild hemorrhages from the nose. The dose of the medicine was doubled, the symptoms subsided, and he rested quite comfortably during the balance of the attack.

On September 8th the young man had for several days been taking a preparation of beef-peptones and was convalescing without incident. I copy from my notes of this case a record of his temperature: August 15, A.M., 103 6°, P.M., 104.2°; 16th, A.M., 101.2°, P.M., 102.4°; 17th, A.M., 100.4°, P.M., 101.6°; 18th, A.M., 100.2°, P.M., 102.2°; 19th, A.M., 101.8°, P.M., 103° (dose doubled); 20th, A.M., 101°, P.M., 102.2°; 21st, A.M., 100.6°, P.M., 101.8°; 22d, A.M., 101°, P.M., 102°; 23d, A.M., 100°, P.M., 102.4°; 24th, A.M., 99.8°, P.M., 102.2°; 25th, A.M., 99.8°, P.M., 101.4°; 26th, A.M., 99.8°, P.M., 101°; 27th, A.M., 99°, P.M., 100.8°; 28th, A.M., 99.4°, P.M., 100.6°; 29th, A.M., 98.8°, P.M., 100.2°; 30th, A.M., normal, P.M., 100°; 31st, A.M., 98.2°, P.M., 99.6°; September 1, A.M., normal, P.M., 100°; 2d, A.M., 98.8°, P.M., 99.4°; 3d, A.M., normal, P.M., 99.6°; 4th, A.M., 98.2°, P.M., 98.8°; 5th, A.M., normal, P.M., normal.

CASE III.—L. E., was a four-year old boy, of a healthy though neurotic family. His health had been previously good. This case and Case I are similar in many respects. I did not see the patient until the middle of the second week, when he was brought to my house by his sister, who said she wanted to know what was the matter with the boy. He was usually very lively, but for the preceding ten days he had been peevish and stupid and had no appetite, complaining of pain in his stomach and bowels. His temperature was found to be at that time 104.4°, the respiration and pulse rapid. He was sent home immediately and ordered put to bed. Calomel in $\frac{1}{10}$ gr. doses was prescribed for him every half-hour until the bowels acted, and aconite in minim-doses every hour for the fever. The temperature the next day was 103.6° and 104.6° in the morning and evening respectively.

When the possibility of his having typhoid fever was suggested to his parents they made light of it and said they were positive it was not, as they said the first symptom they noticed was a bright scarlet rash which completely covered his body, but which also disappeared quite rapidly, no trace of it being apparent when the child was first seen by me.

However, I placed him on teaspoonful-doses of the chlorin-solution every two hours, together with a milk-diet and a care for the bowels. The symptoms and course of the attack clearly indicated typhoid fever, but how he was infected will probably always remain a mystery, as he had not been away from home, and the family used the city hydrant-water, the families in the other two cases being supplied with well-water.

On September 15 the child was allowed to partake of some solid nourishment, and made an uneventful and rapid recovery. The course of the fever in this case was similar to that of Case I.

In all of these cases there was the rose-colored eruption, the furred tongue, the headache, pain in the right iliac region, constipation, and delirium. During the whole course of treatment in each case nothing was given after the diagnosis was made other than the chlorin-solution, except daily sponge-baths, enemata of hot water or broken doses of calomel and Epsom salts to keep the bowels clean. The diet was milk, diluted about one-half with water and given every two hours in quantities that proved to be thoroughly assimilated; the idea being to give sufficient nourishment, but not to have the bowels clogged with undigested and decomposing matter. It will be seen by reference to my notes that the course of the fever did not extend over three weeks, and that the range of temperature was lowered soon after the administration of the chlorin-solution, and that the fastigium did not last over one week. No complications intervened, each case convalesced and made a speedy recovery without relapses or sequelæ.

FLAGELLATE PROTOZOA IN THE FRESHLY PASSED URINE OF A MAN; PRELIMINARY NOTE.

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A. B., twenty-seven years of age, came to me for the treatment of frequent urination. For a number of years the patient lived in Texas, where he had frequent attacks of intermittent fever. About two years ago he had pneumonia, and during convalescence developed hematuria, diagnosticated as malarial. The hematuria finally subsided, but the attacks of frequent urination became more severe and the patient noticed that a whitish cloudy substance was passed with the last few drops of urine, especially at times when micturition was unusually painful and frequent. A few days before I first saw the patient the urine was examined by a colleague, who found pus and blood, and he gave remedies. A few days later I saw the patient. The symptoms were much improved. The urine passed in my presence was clear, acid, with a specific gravity of 1020. It contained numerous whitish specks, about the size of a small pin-head, or slightly larger, somewhat resembling the caseous bits passed in some cases of tuberculosis of the genito-urinary tract, and smaller and less opaque than gleet-threads. (The patient, whose veracity I have no reason for doubting, denies coitus.) Under the microscope these showed pus-corpuscles, epithelial

cells, and a number of bodies slightly larger than pus-cells, of a peculiar hyaline appearance, which struck me as being so remarkable that I immediately began to dictate a note about them. It soon became evident that the bodies were animal parasites, and after a little observation they were identified as belonging to the genus trichomonas. In the identification and further study I have received much valuable assistance from my colleague, Dr. J. Playfair McMurrich, Professor of Anatomy in the University of Michigan, to whom I express my thanks.

The bodies are usually from 0.015 – 0.020 mm. long, and from 0.008 – 0.015 mm. wide, of the shape of an apple-seed, oval, ovoid, or irregular. At one end are from two to four flagella; at the other, sometimes, a flagellum-like tail, though this is not constant. At one side, running back from the base of the flagella, is an undulating membrane. This is not always visible. The structure of the body is finely granular, sometimes almost homogeneous, occasionally containing coarser granules resembling cocci. There is an oval nucleus with a long narrow chromatin-body. There is no mouth and no evidence of internal structures. Vacuoles are sometimes present, but there is no contractile vesicle. Besides the ciliary motion of the flagella, and that of the undulating membrane, the organism is able to change its form, to form pseudopods and to move by expanding and contracting the body.

Since the first observation I have made many others and have demonstrated the organisms to a number of colleagues. The fresh urine always contains the organisms, sometimes in large numbers, always in the bits mentioned; these are passed in the last few drops. The condition of the patient is somewhat improved.

The organisms resemble closely *Trichomonas vaginalis* Donné, as described by specialists. (The descriptions in nearly all books are faulty: that of Bütschli, in "Protozoa," in *Bronn's Klassen und Ordnungen*, Abth. ii, is the best.) Only three other cases in which they have been found in freshly passed urine (not that of women), seem to be recorded; those of Künstler (*Journ. de Méd. de Bordeaux*, 1883-84, xiii, p. 249-250), Marchand (*Centralblatt für Bakteriologie und Parasitenkunde*, Bd. xv, 1894, No. 19-20, p. 709) and Miura (*ibid.*, Bd. xvi, No. 2, p. 67).

In many respects my own case is remarkable and peculiar. I am now carrying on investigations with the organisms, which I purpose to report later, with a consideration of similar and allied observations.

MEDICAL PROGRESS.

Stenosis of the Upper Air-passages from Syphilitic Adhesions.—At a meeting of the Berlin Laryngological Society, Heymann (*Berliner klinische Wochenschrift*, 1894, No. 33, p. 766) reported the case of a woman, thirty-four years old, who, among other syphilitic manifestations, presented ulceration of the posterior wall of the pharynx, which remained uninfluenced by anti-syphilitic treatment, so that after the lapse of a number of months the palate also became involved. At the same time gummatous ulcers had formed upon the epiglottis and at the entrance of the larynx. The ulcerative process was followed in part by thickening and in part by destruction of the epiglottis, together with progressive stenosis of the pharynx. The vocal bands remained unaffected. A complicating acute angina, with peritonsillar abscess-formation, rendered high tracheotomy necessary. From this attack and the attendant operation the patient recovered satisfactorily in the course of ten days. In the sequence of large doses of iodids the lesions in the larynx and pharynx became cicatrized. The posterior arches became adherent to the posterior wall of the pharynx, so that there remained but a small round opening into the nares. The tonsils were distorted toward the middle line. Below the opening into the nares, and upon the posterior wall of the pharynx, were to be seen radiating cicatricial bands, together with reddened areas, in part eroded. The base of the tongue upon both sides was adherent to the posterior wall of the pharynx, and there remained but a small, oval, and somewhat irregular opening, perhaps as large as the thickness of a finger. Changes took place in the right vocal band, which became swollen and restrained in movement. The striking feature of the case lay in the fact that the process could not be stayed by the most active therapeutic measures, and that relief was afforded only after the performance of tracheotomy.

In a second case, a young man with hereditary syphilis remained in fairly good health until the age of fifteen, when hoarseness appeared, which resisted various therapeutic measures. The upper portion of the soft palate presented an opening of irregular size, with smooth, cicatrized margins and absence of the uvula. The right posterior half-arch was adherent to the wall of the palate. The posterior wall of the pharynx presented a small cicatrix. The right half of the epiglottis was smaller than the left, and the epiglottido-pharyngeal ligament was thickened and shortened. The right arytenoid was increased in size and dislocated inward, so that it projected into the cavity of the larynx. The right vocal band was immovable. The left side of the larynx was practically normal. Below the free margin of the vocal bands was a muscular membrane involving the anterior four-fifths of the glottis, and extending further backward upon the left side than upon the right. It was proposed to divide this membrane and dilate the larynx with bougies.

A third case occurred in a girl, eleven-and-a-half years old, affected with hereditary syphilis, who presented an atrophic condition at the base of the tongue and upon the left side a gumma. The posterior half-arches, and particularly the left, were adherent to the posterior wall of the pharynx. The uvula was reduced in size by cicatricial contraction. The root of the tongue was adherent to the lateral walls of the pharynx and in part to the posterior wall. The epiglottis was almost completely destroyed and formed an irregular prominence. From its lower portion a cicatricial fold pursued its way backward toward the arytenoid cartilages. The right vocal band was quite intact; the left was largely destroyed and the remainder distorted from cicatricial contraction.

Auditory Vertigo Caused by Working in Compressed Air.—Curnow (*Lancet*, 1894, No. 3715, p. 1088) has reported the case of a man, twenty-seven years old, who for a number of years had been engaged in the excavation of

tunnels, in some of which compressed air was used. He had never felt any ill-effects from his work, until, on one occasion, after walking nearly three miles toward home, he became faint quite suddenly, and would have fallen had he not been supported. He experienced a sudden noise in his left ear and felt quite deaf, although previously his hearing had always been good. He also felt giddy, neighboring objects appearing to revolve about him. He had also slight cutting pain in his knees. He had no epitaxis, although he stated that this is common among workers in tunnels. When seen, he was in a collapsed condition, with great pallor and a cold sweat on the forehead. The respiration was hurried; the pulse 66; the temperature 96°. He was tremulous and unable to stand. He complained of intense giddiness, which was not influenced by position, and was experienced when sitting down and when lying in bed, surrounding objects appearing to revolve about him. He had loud, booming noises in his ears, particularly in the left. These were uninfluenced by inflation of the tympanum. He vomited repeatedly when the attack came on, and the sickness lasted until after his first night in the hospital. There was well-marked horizontal nystagmus, especially when the eyes were directed to the right. There was also a small amount of vertical oscillation in both eyes. Hearing was much impaired on the left side, a loud-ticking watch being only faintly heard on contact with the mastoid. When the watch was placed on the forehead or between the teeth it was always better heard on the right than on the left side. Both tympanic membranes appeared quite healthy, and in neither auditory canal was there an undue accumulation of cerumen. There was no oculo-motor palsy. The pupils reacted well to light and in accommodation. In both eyes the fundus was normal. Taste and smell were not affected, and there was no headache. The gait was uncertain and hesitating, but spastic and ataxic signs were absent. In walking there was a tendency to reel and fall toward the right, which became more marked on turning around to the right. When the eyes were closed the station was unsteady. As the effects of the shock passed off, the patient's general condition improved, but the vertigo, nystagmus, tinnitus, and deafness persisted. Walking for any distance was attended with reeling. It is reasoned that the most probable explanation of the case is hemorrhage from the vessels distributed to the semicircular canals, resulting from the difference between the ordinary pressure of the air and that under which the man was working.

THERAPEUTIC NOTES.

The Treatment of Diphtheria with the Antitoxin.—BÖRGER (*Deutsche medicin. Wochenschr.*, 1894, No. 48, p. 902) has reported the results obtained from the employment of Behring's serum at the medical clinic of the University of Greifswald. Thirty cases were treated between August 6 and November 3, 1894, in all but two of which diphtheria-bacilli were found. Two cases died, a mortality of 7 per cent.; 28 recovered, 93 per cent. Tracheotomy was necessary in 5, one of which died. Among 313 cases of diphtheria treated from October, 1893, to September, 1894, 46 died, a mortality of 14.5 per cent. Deducting 20 cases treated with the antitoxin and 70 others in which either bacteriologic examination was not made, or the diagnosis was not indubitable, there remain 223 cases, among which there took place 46 deaths, a mortality of 20 per cent. The employment of the antitoxin was, as a rule, followed by improvement in the appearance of the diphtheric process and by reduction of temperature, but the albuminuria was not prevented, and no direct influence upon the heart was observed.

At a recent meeting of the Medical Society of Königsberg, HILBERT (*Deutsche med. Wochenschr.*, 1894, No. 48, Suppl. No. 18, p. 142) made a report of the results obtained in the prevention and treatment of diphtheria with the antitoxin. A statistical study had shown that one-fifth of the cases originated by contagion at home. Protective inoculations with the antitoxin were made in 64 cases in 25 families, four strengths of serum being employed, of which at first 0.5 c.c., and subsequently 1 c.c., was employed. The diagnosis in the cases of the sick children was established bacteriologically. Of 10 children treated with Behring's normal serum, 4 were attacked with diphtheria; of 8 treated with the sixfold strength of Aronson's serum not one was attacked; of 18 treated with the thirty-fold strength of Aronson's serum 2 were attacked; and of 28 treated with the sixty-fold strength of Behring's antitoxin 1 was attacked. In the inoculated children attacked the disease pursued a mild course and terminated favorably. In the families treated four adults not inoculated were attacked with diphtheria. Eleven cases of diphtheria were treated with Behring's serum; 8 were either mild or of moderate severity; in 1 the larynx was slightly involved; in 2 there was marked stenosis of the larynx. All recovered.

Untoward Effects of the Antitoxin of Diphtheria.—CNYRIM (*Deutsche medicin. Wochenschr.*, 1894, No. 48, p. 898) has reported the cases of two clinical assistants who were attacked with angina, attended with deposits in the pharynx, and in both of which serious symptoms followed the employment of Behring's serum. In one of the cases the diphtheric nature of the affection was established by bacteriologic examination. In the first case an injection of 10 c.c. of serum No. 2 and another of 10 c.c. of serum No. 3 were made on successive days, and the throat-affection soon subsided. In the course of a few days, however, an urticarious eruption appeared, with elevation of temperature, increased frequency of pulse, glandular enlargement, coated tongue, headache, general malaise, and articular and muscular pains. These symptoms continued for nearly two weeks, gradually disappearing, but leaving the patient in a debilitated and irritable condition. In the second case a single injection of 10 c.c. of serum No. 1 was made. Several days after the throat-manifestations had disappeared the appetite became impaired and the sleep disturbed. There was a constant sense of heat, with free perspiration on slight exertion, malaise, jerking of the lower extremities, pains in the neck and arms, elevation of temperature, glandular enlargement, urticarious eruption, paresthesia, and loss of flesh. The symptoms in this case likewise continued for two weeks, also leaving the patient debilitated. The injections were made with the greatest of care, and the serum was derived from a responsible source, so that the untoward symptoms in both cases are ascribed to a direct action of the serum.

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THE TREATMENT OF DIPHTHERIA WITH THE ANTITOXIN.

(Continued from page 673.)

For the quantitative estimation of the strength of solutions of diphtheria-antitoxin, BEHRING has set up as a standard a so-called "normal serum," by which all others may be measured. Of this one-tenth of a cubic centimeter when injected together with ten times the minimal dose of diphtheria-poison fatal for guinea-pigs weighing 300 grams prevents the occurrence of any ill effects. One cubic centimeter of the "normal serum" is spoken of as a "normal antitoxin-unit" (BEHRING), or as an "immunizing unit" (EHRLICH). The serum No. I, as prepared at Höchst has from fifty to sixty times the strength of BEHRING'S normal-serum, and, as the antitoxic value varies slightly in different samples of serum, the fluid is usually put up in small vials, to be used at one dose, each vial containing 600 antitoxin-units (8 to 12 c.c.). EHRLICH, KOSSEL, and WASSERMANN immunized goats and obtained a serum of which 1 c.c. contained 60 immunizing units, which they used in the treatment of some two-hundred children in the Berlin hospitals. ARONSON, who carried on extensive immunizing experiments in the large chemic works of Schering, claimed to have prepared a serum by special methods which possessed two-hundred times the strength of BEHRING'S normal-serum. Some of ARONSON'S serum has been tested by BEHRING and BOER, who state that the Schering manufactory has made a mistake of more than 60 per cent. in favor of its product. The strongest serum as yet prepared is the Höchst serum No. III, which is one-hundred-and-forty times the strength of the normal-serum, and is sold in vials each containing from 1500 to 1600 antitoxin-units.

Concerning the clinical use of the curative serum one fact seems to be definitely established. The earlier the treatment is begun the less is the amount of antitoxin required and the greater are the chances of success. When we consider how quickly after the onset of a diphtheric infection alterations histologically demonstrable may appear in the nerves, heart-muscle, and kidney, the reason is obvious. If we are to believe the statistics that have been published, almost 100 per cent. of the cases treated with the serum at the beginning of the disease or during the first forty-eight hours recover. That the results in general are startling and very gratifying, no one will deny. The cases treated in Germany, France, England, and America now number many hundreds, altogether over one thousand, and the death-rate as given by BEHRING, EHRLICH, and KOSSEL in Berlin, and by ROUX and others in Paris, is certainly considerably lower than under any other method of treatment.[1] It is claimed that the results might have been even more favorable had larger doses of the serum been employed. EHRLICH, KOSSEL and WASSERMANN recommended for mild cases a first dose of 200 units, for severe cases a first dose of 400 units, and suggest that the total amount required for a single case will, according to the severity, vary from 500 to 1500 units. SEITZ recommends intervals of ten hours between doses, and states that complications like pneumonia are not to be considered as contra-indications. KOSSEL suggests that 600 units (the contents of one flask of No. I serum) be given for fresh cases on the first or second day of the disease; that 1000 units (one flask of No. II serum) be the dose for cases of longer than two days'

[1] Loeffler in a recent article asserts that the local application of a mixture of ferric chlorid, toluol, menthol and alcohol in fresh cases of diphtheria, kills the bacteria almost immediately, and claims that the cases treated in this way showed a greatly diminished mortality as compared with others occurring in the same epidemic in which ordinary methods of treatment were employed.

duration, or for especially severe cases on the first or second day, or for cases in which the larynx is already implicated; and that from 1500 to 1600 units (one flask of No. III serum) be given to adults or even to children in whom the gravest form of the disease is encountered. In favorable cases the amelioration of the general symptoms, and the lowering of the temperature and of the pulse-rate soon become apparent. It is claimed, further, that sequelæ, acute nephritis or heart-paralysis for example, are rendered less frequent by the serum-treatment; but these have occurred in a number of cases, and already relapses, sometimes fatal, after injection are on record.

Preventive injections have been used with success to a considerable extent. If an epidemic continues, the preventive injection must be repeated after a certain interval. The serum in the doses employed appears to be harmless. It was at first stated that one-tenth of the dose required to cure a mild case of infection once started was sufficient to immunize against infection, that is to say, 60 immunizing units would represent an ordinary protecting dose. BEHRING and EHRLICH have lately found that this dose is occasionally insufficient (out of 10,000 individuals receiving 60 units, 10 developed the disease), so that 150 units are now recommended for preventive inoculation. It appears, too, that the protective influence of the serum lasts the longer the greater the number of antitoxin-units injected. While a dose of 60 units in the majority of cases protects an individual from infection for from two to six weeks, it may be expected, according to BEHRING, that a dose of 150 units will protect for from ten to fifteen weeks.

Mild cutaneous eruptions have occasionally been observed following the injections—a simple erythema, an urticaria, and in one case an outspoken erythema multiforme. There are a few observations recorded in which after from eight to fourteen days complaint was made of pains in the joints and limbs, in a few cases accompanied by swelling, and in one by considerable fever; but such symptoms were always transitory. It was thought by VON RANKE that patients treated with the serum showed a marked tendency to develop a peculiar form of pneumonia, an opinion which his later experience corrected.

The serum apparently has a definite effect on laryngeal complications, and it is held that if at the time of injection the larynx is not involved it does not become diseased later (KOSSEL).

The percentage of cures after tracheotomy is increased somewhat by the serum-therapy. In France, where intubation is common, the time during which the tube has to be retained is shortened. In the reports of ROUX, MARTIN, and CHAILLON, it is stated that in future tracheotomy in diphtheria will be entirely replaced by intubation and that "*le tubage est le complément de la serum-thérapie.*"

One serious limitation to the success of the antitoxin treatment which must have been foreseen, and which has been made evident by autopsies, is to be found in the fact that mixed infections frequently occur in diphtheria. Streptococci are very often present in the throat in association with the diphtheria-bacilli, undoubtedly contributing to the general intoxication, and it is a notorious fact that in many of the severer cases of diphtheria we have not to deal simply with a local infection, with absorption and intoxication, but in addition with a general systemic infection with pyogenic cocci. In cases such as these but little can be hoped for from the treatment with diphtheria-antitoxin, if it is antidotal only to the products of LOEFFLER'S bacillus. On the question of the specificity of the action of the serum of immunized animals we shall have more to say on a subsequent occasion.

There are a whole series of interesting points concerning the origin, nature and action of the antitoxic substances which are worthy of consideration, but a few only can be here referred to. The consensus of opinion just now seems to be that the antitoxins are to be looked upon as the products of the animal cells and tissues, that in fact immunity is at bottom like the processes of metabolism, a *cellular* problem. It has been shown (for tetanus) that if blood be taken from time to time from an immunized rabbit, until finally a quantity has been removed equal to the total amount of the blood normally present in the body, there is no marked diminution in the antitoxic activity of that which remains.

As to the action of the serum, it would seem that the term antitoxin is a misnomer if by it a direct chemic antidote is understood. BEHRING thought that inasmuch as on mixing a solution of the diphtheria-toxins and the serum of an animal immune to diphtheria in a test-tube the mixture when injected proved innocuous, the substances in the serum must have *destroyed* the toxin. BUCHNER has always combatted this view, and has brought experimental

evidence forward to confute it. ROUX has also recently formulated objections to BEHRING's original view, and proves that in all probability the action of the antitoxin-serum is *indirect*, and that it influences the living cells of the tissues, lessening their susceptibility to the bacterial poison. BUCHNER thinks that serum-therapy must be looked upon as a rapid method of immunizing the cells of the body. If this be the case, however, the *passive* immunity conferred by the injection of the serum must differ very much from the *active* immunity which a patient acquires when he has recovered from a genuine infection.

What the ultimate fate of serum-therapy will be it is as yet too early to say. Diphtheria offers an excellent field for the testing of an antitoxin-treatment, for (in the absence of accompanying secondary infections) it is an excellent example of an almost pure bacterial *intoxication*; the bacilli are generally confined to the throat, the poisons and scarcely any of the bacilli going over into the blood and tissues. The disease is acute, the death-rate is ordinarily high, so that it does not take long to pass judgment as to the result of any therapy. The disease, as BUCHNER has pointed out, is a much more preferable one for study than is tuberculosis, since the latter approaches more nearly to a pure *infection*. Moreover, tuberculosis being chronic in its course and subject to spontaneous exacerbations and ameliorations, conclusions as to the efficacy of new therapeutic measures directed against it must always be associated with a certain degree of doubt.

It is ardently hoped that the serum-treatment of diphtheria will not prove so disappointing as the tuberculin-treatment of tuberculosis. Both are founded upon a scientific basis—both are the outcome of animal experiment in connection with artificial immunity; both represent attempts to approach the *vis medicatrix naturæ*. The antitoxin-treatment is evidently a step in advance of the tuberculin-treatment, for, while in the latter toxins (bacterial proteins in the main) were introduced into the human being, there to set up a reaction which was to lead in time to the formation of healing substances, in the former the toxins (metabolic products with some bacterial protein) are inoculated into an animal, the animal suffers the reaction, and manufactures in its body the curative substances, which are then transferred, ready-made and active, to the human being. That healing substances are present in the serum of immunized animals is certain; that as EMMERICH has lately said, careful, quiet work will in the long run lead to results which will insure a satisfactory therapy for infectious diseases, seems probable. But now, as always, there should be hesitation before transferring the results of laboratory-experiments to the field of clinical medicine, where, as in manners, the advice of TALLEYRAND holds good, "*Surtout, messieurs, peu de zèle.*"

SHALL PHYSICIANS, OR SHALL LAY TRUSTEES, BOARDS OF CHARITIES, ETC., DECIDE AS TO MEDICAL MATTERS?

IN THE MEDICAL NEWS of December 8th we adduced a flagrant instance of the outrageous impertinence of laymen in their office of hospital-trustees in disposing of the services of physicians in a dictatorial and unjust manner. We little expected that a more striking illustration of the same spirit would so soon be shown, as happened the next week in Philadelphia. A member of the visiting staff of a great hospital was displaced ignominiously and without warning, without an official charge being made against him, or an official opportunity being offered him for replying to possible charges. Not even an official notice was sent him of his summary dismissal. From newspaper reports one learns that the reasons for this remarkable proceeding were that the physician thus contemptuously treated, in order that he might obtain blood from the patient's finger for purposes of diagnosis and investigation, had not given quinin to a patient so soon as he might have done.

Now, supposing that this information is correct, it must have come from some one. If it came from the birds of the air, or from patients, or from nurses, in the name of frankness let the spies be interrogated; let the charges be made openly. If it came from some rival or envious physician, then all the more imperative is the reason for disclosing the fact. To sentence a man on secret charges, supplied by anonymous persons, without hearing but the side against him, without giving him a chance to know of, or to reply to the indictment—all this seems to betray the consciousness of those who know their cause cannot bear examination in the light of day and by dispassionate minds.

By this action the lay officers of the hospital by implication adopt as a rule of the hospital that experimental studies shall not be allowed by the

medical staff. In rebuttal of this rule they should be asked a few questions :

1. How about the justice of *ex post facto* legislation? Would it not much better become officers of a public trust to first make the law and then punish the subsequent law-breaker, rather than to punish him for breaking a law as yet not enacted?

2. Instead of an unwritten decision of this kind as to experimental medicine, would it not be more orderly and business-like to enact such a rule in proper form, notifying all concerned, and thus give the medical staff (and the world!) an opportunity to know what rules shall guide professional practice?

3. In enacting such a law would it not be politic to exhibit some sign of becoming modesty by asking expert advice in a matter of the nature of which the legislators must of necessity be profoundly ignorant?

4. In enacting such an unwritten law in the recesses of their own self-supposed infallible private consciences, would they not avoid possible error and the derision of scientific men everywhere by first inquiring what is the rule of practice in the greatest hospitals throughout the civilized world?

5. Does the temporary possession of *power* to do an unjust thing give the *right* to do it, and give the right to do it discourteously, brutally, and without opportunity of the accused to defend himself?

About five years ago (January 4, 1890) the editor of THE MEDICAL NEWS, burning with righteous indignation, wrote justly bitter words against the action of the Board of this same hospital in a matter precisely similar to the recent occurrence of which we speak, and, bearing in mind the merit of consistency, we are to-day glad to put THE NEWS in evidence in the same cause.

In doing so, however, we must repeat and reemphasize what we have often said before, that the fundamental guilt of this disgrace lies upon the professional conscience itself. If medical men were not so shamelessly greedy for these positions, if they were not so slavish to the dispensers of them, the lay dictators would not be so ludicrously arrogant in their distribution. No man having the good of his profession at heart should accept a position coming to him in such a way. If the profession had a proper self-respect, and if there were any decent professional unity, even a semblance of professional *esprit de corps*, such an indignity would be simply impossible. The entire staff should first protest, and if their protest is ignored, they should in a body resign, and professional opprobrium be visited upon any that should dare to take their places. If the profession were thus united, how long would the hospitals be carried on without physicians? The profession has the power to be the master, but it seems to prefer to be the obsequious servant. The good of medical science is in the long run for the good of the patient. This the fanatics forget or affect to ignore. Laymen should be taught that even medical men have some rights, and that a becoming respect is due the medical profession for the enormous charitable work it does.

The limits of proper experimentalism in medicine can be set only by medical men. The progress of medicine is of the utmost importance to the community, and laymen are not fit judges of the methods of the outworking of that progress. The growing spirit of dictation and arrogance on the part of self-constituted lay judges must be met by the voice of the whole profession in asserting that in medical matters pertaining to hospital management the decision shall rest with medical men.

EDITORIAL COMMENTS.

Protective Inoculation Against Cholera.—We have on previous occasions referred to the results of inoculations practised by Haffkine in some parts of India as a protective measure against cholera. The work is being continued as occasion warrants and opportunity offers. An unequivocally fair test of the value of the inoculation has not yet been recorded. Three interesting series of observations have, however, been recently made.

Four cases of cholera appearing among a population of 200 in a portion of Calcutta, 116 were inoculated, none of whom subsequently contracted cholera, while 9 cases and 7 deaths occurred among those that were not inoculated. Five of these nine were the only ones attacked in five respective houses, the inhabitants of which had in some instances been inoculated and in others not. The remaining 4 occurred in one house with 18 occupants, of whom 11 had been inoculated. Of 111 people in seven houses, 51 that had been inoculated were not attacked, while of the 60 not inoculated 7 were attacked with cholera, with 5 deaths. The most noteworthy fact is the absence of cholera among those inoculated.

At a gaol at Gya cholera broke out on July 9th, 6 cases occurring up to the 17th, with 5 deaths. On the 18th, 147 persons were inoculated, and on the 19th, 68 more, a total of 215 out of the 433 present at the time. Secondary inoculations were performed four or five days later.

Inoculated and non-inoculated were treated exactly alike in all respects. From July 20th to 24th, when all were in gaol, there occurred among an average of 211.2

inoculated 5 cases of cholera, with 4 deaths, and among 209 non-inoculated 7 cases, with 5 deaths. On July 25th it became necessary to remove the greater portion of the prisoners into camp, inoculated and non-inoculated being represented in fairly equal proportion. From this date to August 2d there remained in the gaol an average of 32.5 inoculated and 48.55 non-inoculated; among the former there was but a single case of cholera, and in this recovery took place, while among the non-inoculated there occurred 7 cases, with 3 deaths. During the same period there were in camp an average of 171.42 inoculated and 146.5 non-inoculated. Among the former there occurred 2 cases of cholera, with 1 death; among the non-inoculated 6 cases of cholera, with 2 deaths. It appears that any protective influence exercised by the inoculations became manifest increasingly toward the end of the treatment, *i. e.*, after a certain period of incubation, for during the first five days after the first inoculation there occurred among the inoculated 5 cases, with 4 deaths, and among the uninoculated 7 cases, with 5 deaths; during the first three days after the second inoculation, among the inoculated 3 cases, with 1 death, and among the non-inoculated 5 cases, with 3 deaths; and during the last six days there were no cases among the inoculated, while among the non-inoculated there were 8 cases, with 2 deaths.

At Lucknow one of the regiments was attacked in July with cholera, which had been present in a virulent form among the native population some months previously. The total strength of the regiment at the time was 773, of whom 133 had been inoculated in May of the previous year. Of 620 not inoculated, 120, or 18 per cent., were attacked, and 79, or 12.3 per cent., died; while of 133 inoculated, 18, or 13.5 per cent., were attacked, and 13, or 9.7 per cent., died.

These observations are interesting and significant. They seem to show that the inoculations have at least a temporary beneficial effect, of which practical advantage could be taken in the event of an epidemic of cholera.

Gonococci in the Blood in Cases of Gonorrheal Rheumatism.—As to the liability to constitutional infection in cases of gonorrhea an abundance of evidence has accumulated. The best known of the complications of this condition is inflammatory involvement of one or more synovial membranes. Less common, perhaps only less frequently observed, is involvement of the endocardium. The undoubted specificity of the secondary lesions, however, has hitherto not been incontestably demonstrated, and the question may fairly arise whether these be infectious or toxic from the circulation in the blood either of the gonococcus or of the products of its vital activity.

An interesting contribution to this important subject has recently been made by HEWES (*Boston Medical and Surgical Journal*, vol. cxxxi, No. 121, p. 515), who cites four cases of gonorrheal rheumatism, in one of which gonococci were, upon bacteriologic examination, found in the blood. Of five other cases of gonorrheal rheumatism, gonococci were isolated from the blood in two. In both sets of cases gonococci were present in the urethral discharge. The victims of specific urethritis appear to be unaware of the gravity of their disease, as regards both extension by continuity and systemic infection and transmission to others; and the facts are, perhaps, not sufficiently noted by medical men. The prophylaxis is simple and effective, and consists only in social purity and sexual abstinence.

The Advertising Newspaper and the advertising doctor are old friends and cronies. What an excellent opportunity the diphtheria-antitoxin business gives all the old regulars to air their opinions in the daily papers! They appear with astronomic (or gastronomic ?) precision just at the proper time. Every new treatment that flashes upon the bewildered public eye, but especially such as that by tuberculin and by antitoxin is certain to produce the same crop of interviews, in exactly the same style, and from precisely the same men. "Same old drunk!" Men who never treated a case of pulmonary tuberculosis or of diphtheria, and who never made a slide in their lives, pronounce with ludicrous dignity and authority (always according to newspaper desire and public prejudice) upon the whole matter. We would suggest to the newspapers that they save reportorial expenses by keeping already stereotyped the old forms of the interviews condescendingly given by their old medical standbys five and ten years ago. Barkis will always be willin', and the pronunciamentos, with the interchange of a few words, will always be identical. The doctor and his reporter have it all stereotyped; why should not the journal also?

Efficiency of Small Filters.—Messrs. Woodhead and Wood have presented to the *British Medical Journal* a special report on the efficiency of many forms of filters sold for domestic uses. They find that there is much irregularity in the quality of the same filter, and that nearly all forms allow organisms to pass. Experiments were made with water containing milk and very finely divided charcoal and ultramarine in suspension.

Tests were made of several filters which had been long in use without cleaning, and it was found that water which before filtration contained less than one-hundred points of microbic life to one cubic centimeter furnished a filtrate containing many hundred colonies. The fact that uncleaned filters may add largely to the microbic life of water passing through them has been generally suspected. The full report is not yet at hand, but it will be a valuable contribution to sanitary literature.

Low Death-rate in England.—The last quarterly returns of the Registrar-General for England show a marked decrease in the death-rate throughout the whole of England. In a total population of over twenty millions living in cities, the rate for the months of July, August, and September was 14.9 per thousand per year, while in rural populations aggregating nearly ten millions it was 12.7 per thousand per year. London has shown as marked a decrease as any part of England, and the diminution of sickness has been distinctly noticed. The favorable condition is ascribed to the cool, wet season that has prevailed. The deaths from zymotic diseases and from diarrhea have been especially low.

Subscription to the Index Medicus is a duty which every reader of these lines owes to his profession. Since our comment in THE NEWS of December 8th we have learned that it is highly improbable that the publication can be

carried on at Government expense. Unless a sufficient number of subscriptions can be received to pay the cost of continued publication this most valuable journal will be discontinued with the December number. For this purpose 800 subscriptions are necessary at $10 each. It would be a good plan to have blank forms pledging subscriptions and support laid before all medical societies, and the attention of members drawn to the duty.

SELECTIONS.

THE PURIFICATION OF DRINKING-WATER.

A REGULAR meeting of the Wistar Biological Society was held at the Wistar Institute on November 9, 1894. General Isaac J. Wistar presided. There was a discussion of the subject of "The Purification of Drinking-water, with Special Reference to the Water-supply of Philadelphia," which was participated in by Dr. William Pepper, Dr. A. C. Abbott, and Dr. Henry Leffmann.

After a brief introductory address by General Wistar, Dr. Abbott spoke of the natural methods of filtration of water through the soil, and said that the deeper the soil the poorer it was in bacteria. This change, however, was not the only one, as there was a marked change in the constitution of the water as found by its passage through the soil. Organic matter will have been found to have disappeared. Surface water in going through soil undergoes not only bacteriologic but chemic purification, and the most desirable water is that obtained from the deepest strata. It becomes important, he said, to know how Nature can be imitated so as to obtain this water, and the method is that of filtration by sand, passed through large stones, then gravel and sand to a fine sand at the top of the filter. The first waters passed through such a filter simply wash away the bacteria. This method, he said, was preëminently a biologic one. It is Nature's way, and is not only satisfactory, but meets sanitary requirements.

Dr. Abbott then alluded to the cholera-epidemic in Hamburg and a neighboring city in 1892, both of which obtained their water from the river Elbe. Hamburg supplied its people with water directly from the river, and with a population of 635,000 there were 18,000 cases and 8000 deaths, while in the other city, which filtered its water, in a population of 145,000, there were but 516 cases, with 316 deaths. There were 283 deaths to every 10,000 people where unfiltered water was used, and only 36 to every 10,000 where the water was filtered.

The biologic phase of the question, he said, was to consider the effect that impure water may have on health. In this connection he discussed the prevalence of typhoid fever, which, he said, was very high in Philadelphia, the average being 6.31 to 10,000 of the population. This is lower than that of Chicago, but higher than that of New York, Boston, Berlin, and Paris. It looked, he said, as if this disease should be charged to something used in common in the community—air and water—and the latter, by common consent, is believed to be the one that causes typhoid fever. The places where the deaths are fewer are where the water-supply has been purified. He showed how, in Chicago, the death-rate from the disease had been reduced by putting the in-take further out in the lake, and similar results had been obtained in other large cities, both in this and in foreign countries. If steps are taken here to correct the water-supply he believed that it would result in a reduction in the mortality that would exceed the most sanguine expectations.

Dr. Leffmann, who followed, pointed out that the main object of the precipitation-methods is to economize the filtering area, and that, by introducing in the water some ingredient which will collect the suspended matter in a coagulum, the operation of filtration takes place with greater rapidity. The best substance used to-day in the purification of water, he said, is aluminum sulphate, as such, or in the form of alum. In explaining the operation of this material, he said it removes any color from the water, as well as any turbidity, etc.

Dr. Leffmann also discussed the sand method of filtration, and that by the use of iron turnings. In the latter process the small pieces of iron are placed in a cylinder about as large as a hogshead, through which the water constantly passes. The iron is ground up slowly by the friction and rubbing, and by the chemic change that takes place the water is purified. He stated that he had had considerable experience with the iron method of filtration, and was satisfied that it was capable of doing good work, especially in waters decidedly turbid.

In reference to the subject of typhoid fever, Dr. Leffmann said that from the records of the Board of Health he found that in 1893 there were 453 deaths from the disease in the city proper. The district supplied by the East Park Reservoir, which includes Kensington, is tolerably free from typhoid fever, while in Kensington, when it received its water-supply from the station at Otis Street wharf, the mortality was much greater. In fact, the disease has mostly disappeared from the district, while in the district west of Broad Street, which receives its water-supply direct from the river, the disease is more prevalent. In Girard College, which is in this district, and which has about 2000 boys, there is scarcely a case of typhoid fever, because filtered water is used.

Dr. Pepper said that no community was in more urgent need of purified water than Philadelphia, where water is used to a larger extent than perhaps any city in the world. It was quite important, he said, that a method of filtration that had been shown to be so economical should at least be tried, pending a determination of the question of the ultimate water-supply of the city. He complimented the stand taken by Mayor Stuart and Director Windrim in advocating purification of the water by asking Councils for an appropriation for a filtering-plant at Belmont, and urged the members of the society to use their influence in promoting the scheme. For himself, he said, he did not permit his family to drink Schuylkill water unless it had been boiled, and the amount of drinking-waters purchased by people, he said, was enormous and scandalous.—*University Medical Magazine.*

A SUBSIDIZED PRESS.

THE *Druggist's Circular* tells us that the eleventh annual meeting of the Association of Manufacturers and Wholesale Dealers in Proprietary Articles was held at Delmonico's, in New York, on the first and second days of October. From a report of the proceedings we abstract the following:

Mr. Cheney, of Toledo, stated that he had a point to

give to advertisers. He has a clause in his contracts with publishers of newspapers to the effect that if the Legislature of the State in which the newspaper is published or Congress shall make any law interfering with or restricting the sale of proprietary goods the contract shall be void. When such a bill is introduced in the Legislature of any State, all he has to do to stop its passage is to call the attention of the newspapers in such State to the clause in their contracts with him, and they "do the rest." This, Mr. Cheney explained, was much cheaper than keeping a lobbyist at the various capitals, and subscribing $300, as he had been asked to do in the State of Illinois, to be used in the suppression of blackmailing measures. Mr. Cheney said that if it was the sense of the meeting to put his plan into the form of a resolution he would do so, but an amendment, thanking Mr. Cheney for his suggestion, was substituted and adopted.

We do not know who Mr. Cheney is nor the name of the medicine or food he makes, but we do know that the proposition he made, and which seems from the report to have been formulated and adopted by the association, is an attempt to subsidize the entire press of the country, and which is truly alarming.—*Cincinnati Lancet-Clinic.*

REVIEWS.

TUMORS, INNOCENT AND MALIGNANT: THEIR CLINICAL FEATURES AND APPROPRIATE TREATMENT. By J. BLAND SUTTON, Assistant Surgeon to the Middlesex Hospital, London. With two-hundred-and-fifty engravings and nine plates. Small 8vo, pp. 511. Philadelphia: Lea Brothers & Co., 1893.

THIS is a very interesting and instructive book. Mr. Sutton proposes a new classification of morbid growths on lines similar to those employed in biology, arranging them in four groups, each divided into genera, and these again into species, each of which may present one or more varieties.

The groups are: connective-tissue tumors, epithelial tumors, dermoids, and cysts. Of these groups the first contains twelve genera, and each of the others four. Among those of the first group we note neuromata, angeiomata, and lymphangeiomata; these, as representing tissues of special function, might perhaps be more properly placed in a separate group. The second group contains papillomata, epitheliomata, adenomata, and carcinomata. Under the third are found sequestration-dermoids, tubulo-dermoids, ovarian dermoids, and dermoid patches. The fourth includes retention-cysts, tubulo-cysts, hydroceles, and gland-cysts; the last-named having under it a subgroup of "pseudo-cysts," embracing four genera—diverticula, bursæ, neural cysts, and parasites.

Appended to the discussion of dermoids there is a chapter on teratomata, which is interesting, but seems to be superfluous. It is introduced, the author says, because certain species of these malformations are so very likely to be confounded with dermoids; but he mentions only one such instance, and that one of no material consequence.

Did space permit, we should very gladly give a further analysis of the views presented as to the species and varieties of morbid growths, and of the practical deductions drawn from them. A peculiar and valuable feature of this work is the very frequent reference to the analogous formations met with in the lower animals of the vertebrate class. Especially is this notable in the portion relating to dermoids, and it is emphasized in a chapter devoted to the zoological distribution of tumors.

As a general rule, we agree with Mr. Sutton's views in regard to treatment. But we are constrained to take issue with him when he says that in a large majority of instances of rectal carcinoma it is impossible to determine the seat of the disease, and advocates a preliminary celiotomy in the median line for the mere purpose of manual exploration, to be followed (the wound first made having been closed) by the formation of an artificial anus at a suitable point.

The chapter on the causes of tumors is a very interesting one. The problem of the genesis of morbid growths is to physicians somewhat as that of the origin of moral evil was to the theologians of a former time. In both cases we believe that in the last analysis the trouble is found to be a misplacement, or a hypertrophy, or an erratic development, of what is in itself normal. Mr. Sutton thinks with Cohnheim that, except in the sarcomata, epitheliomata, and carcinomata, an important part is played by *vestiges* and *rests*. By the former term are indicated "structures that are remnants of organs functional in vertebrates lower than man; those organs that are of importance to the embryo, but useless in the adult; and a few which, though utilized in the male, are useless or almost useless in the female, and *vice versâ*; as well as those structures which, as far as we know, serve no useful purpose in any vertebrate at present living, but were doubtless of importance in their ancestors." By *rests* are meant "detached fragments of glands and isolated portions of tissue and epithelium."

With regard to carcinoma our author justly says that a correct appreciation of its morphology is of the first importance as a prelude to the study of its cause. He thinks that in a large class of cases the coccidian theory may be accepted, although it fails altogether to explain the phenomena in many others. We should have been glad to find this whole topic of etiology discussed at much greater length; but indeed throughout the entire work the style adopted is very terse, as was needful for the treatment of so extensive a subject within such narrow limits.

On page 419 it is stated that "cervical cysts in children and cervical air-sacs in monkeys are *on all-fours*." What is meant by this absurd phrase we can conjecture; but it seems to us as inelegant as any of the "Americanisms" with which our brethren on the other side of the water are so prone to find fault.

The value of this book is greatly enhanced by profuse illustration and by clear and correct typography. We predict for it a deserved success.

A CLINICAL MANUAL OF DISEASES OF THE EYE, INCLUDING A SKETCH OF ITS ANATOMY. By D. B. ST. JOHN ROOSA, M.D., LL.D. Illustrated by one-hundren-and-seventy-eight engravings and two chromolithographic plates. New York: William Wood & Co., 1894.

THIS is an astonishing book! It seems to have been written to promulgate the author's peculiar and well-

known views concerning the diagnosis and treatment of refraction-anomalies. There is nothing in the work besides these views that is new and that required the writing of six-hundred pages to tell. To repeat the old saw, what is new in the book is not true, and what is true in it is not new. We sympathize entirely with the author in his denunciation of the excesses of the tenotomists, but that any sane ophthalmologist should assent to his own extravaganzas is beyond belief. His absurd worship of the divine ophthalmometer, his ignoring of anisometropia, and of any but of extremely high errors of refraction, his ignoring of muscle-imbalance, his distaste for mydriatics, his detestation of the idea of reflex neuroses due to eye-strain, his scorn of the thousand truths believed in and well-established by hundreds of careful and conscientious ophthalmologists—all these things are silly, wearying, and oppressive. The parts of the book referring to these things are crammed with as many reiterated errors as it is possible to be. The author should perform *harikari*, and name the advertising optician as his residuary legatee. A worse book to put in the hands of the student of medicine, the general physician or the young oculist, we cannot imagine.

But we advise the experienced and conscientious oculist to buy the book, in order to see how in the practice of medicine (*sic*) the very existence of the troublesome, the doubtful, or the mysterious can be denied existence, how the life-long experience and problems of careful men can be sneered at and dogmatized down, how far business, guesswork, and machinery, can be supposed to carry in the diagnosis and treatment of disease. If disgust can be conquered by a lively sense of the ridiculous, such a reader is promised much amusement.

On Chorea and Choreiform Affections. By William Osler, M.D., Fellow of the Royal College of Physicians, London; President of the Association of American Physicians; Professor of Medicine Johns Hopkins University, and Physician-in-Chief Johns Hopkins Hospital, Baltimore; formerly Physician to the Infirmary for Diseases of the Nervous System, Philadelphia. 8vo, pp. x, 125. Philadelphia: P. Blakiston, Son & Co.

As stated in the preface to this monograph, its contents are largely based upon observations made at the Philadelphia Infirmary for Nervous Diseases, an institution unique for the richness of its service, the fulness of its records, and the care given to the study of its cases. The work is a faithful reproduction of a disorder at once well known, and in some respects obscure, and accurately portrays the current conceptions of chorea in its varied aspects. In the introduction the following useful description is given: Chorea minor, classic chorea, as described by Sydenham; chorea major, an hysterical affection; pseudo-choreas, including the various forms of local or generalized habit-spasm or tic; and secondary or symptomatic choreas, dependent upon degenerative and irritative lesions of the motor cortex or path. Only the first and third of these groups are here considered, together with the chronic progressive forms of the fourth group described by Huntington. The general etiologic features and the clinical picture of chorea minor are given at length, but little light is shed on the morbid anatomy and pathology, although the suggestion is given that at least some cases are of infective origin. A relationship between chorea and acute rheumatism is maintained, but its nature is not explained. Not less interesting than the consideration of chorea minor are the chapters devoted to the pseudo-choreas and to chronic progressive chorea. Appended to the text is an analysis of seventy-three fatal cases of chorea minor. Altogether this monograph will stand as an authoritative statement of existing knowledge upon the subject of chorea, and will add luster to the reputation of its distinguished author.

A Text-Book of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With special chapters by Drs. G. E. de Schweinitz, Edward Martin, and Barton C. Hirst. New (fourth) edition, revised and enlarged. Octavo, 740 pages. Philadelphia: Lea Brothers & Co., 1894.

We cannot better call attention to the new edition of this work than by quoting the author's words in the preface:

"The fourth edition of this work having been called for in less than four years after the appearance of the first, the author has taken advantage of the opportunity to rewrite and add to many of the articles on drugs, remedial measures, and diseases, and to insert practical information concerning the value and prescription of the really useful new remedies. Articles on methylene-blue, chloralose, pyrogallol, condurango, convallaria, duboisin, and other remedies have been added to the part of the work dealing with drugs. In the part dealing with remedial measures other than drugs, articles have been written on hypodermoclysis and enteroclysis, lavage, and upon mineral springs and climatic treatment. The latter article is not intended to be exhaustive, but to give the general practitioner an idea of the therapeutic value of certain well-known resorts, in order that he may offer rational advice to his patients as to where they should go in search of health. Several new articles in the part devoted to the treatment of individual diseases have been inserted, and new or modified applications of the older remedies carefully noted throughout the entire book."

Aseptic Surgical Technique, with Especial Reference to Gynecological Operations, together with Notes on the Technique Employed in Certain Supplementary Procedures. By Hunter Robb, M.D., Associate in Gynecology, Johns Hopkins University; Professor of Gynecology, Western Reserve University. Illustrated. Philadelphia: J. B. Lippincott Co. 1894.

Though there are still some men practising surgery whom the amazing contrast of the results of latter-day operations with those of twenty-five years ago has not yet converted to belief in the doctrine of wound-infection through bacterial agency, their number is happily

small, and is constantly diminishing. Every surgeon whose mind is not hopelessly incapable of welcoming new truth has embraced the great principle first presented by Lister, and, in proportion to his conscientiousness and capacity for close observation and accurate reasoning, has followed with delight the progress of the method from the first crude applications of chemic antiseptics to the present elaborate and wonderfully successful system.

The volume in hand is the latest literary product of American surgery and contains the most approved rules for the achievement of asepsis, based not only upon experience in the operating-room, but also upon close study in the bacteriologic laboratory. The author is an extremist, but he is a reasonable one, stating the case with judicial fairness and admirable clearness, insisting with emphasis upon the thorough employment of the means recommended, but without the least display of the righteous indignation at the unregenerate which made a certain book on modern methods at once picturesque and popular. The lazy and indifferent will object that the minuteness of precautions here enjoined is unnecessary; but those who have taken pains to keep pace with the times, and who consequently know that the best results of wound-treatment are obtained only by precise attention to such details, will welcome the book as an embodiment of the best rules which the largest opportunities and most faithful research have as yet devised. We trust that this valuable and interesting publication will receive the wide attention to which its merits entitle it.

THE MEDICAL NEWS VISITING LIST FOR 1895. Weekly (dated, for 30 patients); Monthly (undated, for 120 patients per month); Perpetual (undated, for 30 patients weekly per year); and Perpetual (undated for 60 patients weekly per year). Philadelphia: Lea Brothers & Co., 1894.

THIS useful and popular visiting list has been revised and brought up to date. The text contains an alphabetical table of diseases, with the most approved remedies, and a table of doses, sections on examination of urine, artificial respiration, incompatibles, poisons and antidotes. diagnostic table of eruptive fevers, and the ligation of arteries. The classified blanks are arranged to hold records of all kinds of professional work, with memoranda and accounts. Great care has been exercised in the selection of the contents and much judgment in the arrangement of the record-blanks. The mechanical execution of the book is satisfactory, and special attention seems to have been given to the quality of the paper and the strength and style of binding.

When desired, a ready reference thumb-letter index is furnished. A new and praiseworthy feature is the provision for obstetric memoranda. The list will fit an ordinary inside coat-pocket.

CORRESPONDENCE.

A FOOT-BALL ACCIDENT.

To the Editor of THE MEDICAL NEWS,

SIR: THE MEDICAL NEWS having recently contained a number of reports of accidents from foot-ball, I wish to report an accident that is rather uncommon under any circumstances and more particularly as a result of the game of foot-ball.

G. H. S., about nineteen years old, a student, while playing foot-ball was thrown down, striking his hand violently on the ground. He noticed some numbness of the hand, which later developed into pain, more especially in the little finger. The finger becoming swollen, the young man consulted a physician. Being dissatisfied with the result of the treatment, I was consulted, and found a small swelling to the proximal side of the terminal joint of the little finger and complete loss of power to extend the distal phalanx after flexion. My diagnosis of laceration of the extensor tendons was verified when, under cocain-anesthesia, I cut down on the tendons and found an interval of more than half an inch between the ends, the tear being a ragged one and situated less than one-eighth of an inch from the attachment of the tendon. Being unable to approximate the ends, owing in part to the delicacy of the tendons and in part to the length of time intervening between the time of the accident and the operation (about one month), I transferred two strands of large-sized catgut to the wound, filling the gap between the ends of the torn tendons, and stitched the wound with silk. I was gratified to get an almost complete recovery of the use of the finger, there being a slight incompetency of the extensor, due, I think, to a slight increase in its length following the graft.

Although taking the same precautions as regards asepsis in this operation as I do with my celiotomies, I was unfortunate enough to have pus in the wound, which necessitated the removal of all the stitches on the fourth day, but after thorough irrigation with 1 : 30 solution of carbolic acid, no further trouble was experienced, and I blame the suture-material for the pus.

Respectfully. JOHN A. HAWKINS.

105 JACKSON ST., ALLEGHENY, PA.

THE CONTROL OF HEMORRHAGE FROM THE SPLEEN AND OTHER ABDOMINAL VISCERA.

To the Editor of THE MEDICAL NEWS,

SIR: Dr. L. McLane Tiffany, in THE NEWS of November 17, 1894, p. 546, relates how he checked hemorrhage from the spleen by deep interrupted silk sutures. Mattress or square sutures of thick catgut, introduced by long, slender darning-needles, are, perhaps, still more efficient and innocuous in almost all hemorrhage from the abdominal viscera, and indeed would be well worth a trial in wounds of the lung. The kidney, even its pelvis, may be thus perforated as often as required with impunity. Were silk used in the pelvis of the kidney it is probable that calculous formations might result. By the suture alluded to a quadrangle of tissue is compressed. Sincerely,

FRANCIS L. HAYNES.

LOS ANGELES, CAL.

NEWS ITEMS.

Foot-ball Civilization.—From sheer weariness and lack of space we discontinue the English "crop-reports" of deaths, broken bones, and depravity, but continue a few American specimens.

Will Washington, D. C., friends tell us if Captain Bahen is still alive?

"Ugh! Dirty, cowardly work! It reads nice in cold type, does it not? It is the method of the footpad, who steals up from behind and knocks you down with a slungshot."—[Casper W. Whitney on "Foot-ball Methods" in *Harper's Weekly*.]

The treasurer's report of the receipts of the Yale-Princeton foot-ball game has been issued, and shows that the game has netted a snug sum for the two college foot-ball associations. Each will receive $12,104.58 as its share of the profits of the game. The total receipts were $33,468; the total expenses, $9258.83. The receipts of the game last year were $39,439.12, but the expenses were also larger, so that the profits this year were nearly as great as they were a year ago.

Stewart Cravens, aged twenty-four, a student at the Culver Military Academy, Maxinkukee, Ind., died December 5th from an injury received in a game of foot-ball played three weeks ago between the cadets of the academy and the Indianapolis High School team.

The "men" honored by the college world are those conspicuous for their athletic achievements or possibilities. The god of undergraduate idolatry is the foot-ball player, the member of the university crew, the lucky fellow that gets on the base-ball nine or the intercollegiate team. The youths for whom the universities were founded by our wise and pious ancestors, as the Massachusetts Constitution says of the founders of the university at Cambridge, are of no account in the public opinion of their college. They are scrubs, or grinds, or digs. They are despised and looked down upon. This is not the case at Harvard and Yale and Princeton merely, but it is the case at every college of age or reputation in the East. The student who studies is a non-entity. The student who develops his muscles is admired and famous. The institutions founded for the development and propagation of scholarship among men are not true to the purpose of their founders. If cultivation and research exist among them, they exist furtively and without honor. Where are the names eminent in literature, in art, in philosophy, of the college graduates of the last ten years? What the colleges are producing is the professional athlete, the professional instructor in athletics, the professional college man. Take Yale College, for instance, as the most illustrious exemplar of athletic triumphs. What is Yale producing? What is the type of the Yale man now? Is it the poet, or the philosopher, or the man of science? Not much. It is the professional Yale man, or the Yale professional.—*New York Sun*.

"In another game I witnessed one of the players was bleeding slightly, and I noticed that there was frequently a sort of scuffle between him and the man opposite him. When time was called at the end of the first half I said to him, 'Your man is slugging, as you call it, is he not?' He answered with tears of rage in his eyes, 'He strikes at me every time he passes me.' 'Why don't you complain to the umpire?' He made no answer, and the next day denied that there was any 'unnecessary roughness on the part of the opposing players.'"—["A Yale Graduate" in *New York Evening Post*.]

"Had the most benevolent person lived in a country in which the excellence of these games was deemed axiomatic, had he been taken to them in his very childhood, and accustomed to associate them with his earliest dreams of romance, and had he then been left simply to the play of the emotions, the first paroxysm of horror would have soon subsided, the shrinking repugnance that followed would have grown weaker and weaker, the feeling of interest would have been aroused, and the time would probably come in which it would reign alone."—[Concerning the Roman Gladiatorial "Games," from Lecky's *History of European Morals*.]

Claude G. Campbell, a crippled student of Stanford University, was hazed by California University students for applauding the defeat of their team. His head was shaved on one side, his eyebrows and eyelashes cut off, and he was branded with initials on his cheeks.

The Centenary of the Discovery of Vaccination.—The directors of the German Vaccine Institute, at Weimar, are arranging for a celebration, to be held in 1896, in commemoration of Jenner's discovery of vaccination. In connection therewith there is to be an exhibition of old and new vaccine-instruments, of apparatus for the preservation of lymph, etc.; of original manuscripts on smallpox and vaccination; on the inoculation of sheep-pox and cattle-plague in pre-Jennerian days; of squibs on vaccination, of medals, portraits and autographs of prominent inoculators, vaccinators, and anti-vivisectionists, etc.

A Bacteriologic Laboratory for Denver.—Dr. L. E. Lemen, Health Commissioner of Denver, Col., has established a bacteriologic laboratory to be devoted to thorough research in cases of infectious and contagious diseases. Physicians will upon request be furnished tubes with instructions for placing therein pathogenic deposits, sputa, etc., after an examination of which a report will be returned.

The Journal of Medicine and Science is a new monthly publication, the first number of which bears date of December, 1894. It is the official organ of the Maine Academy of Medicine, and is edited by Dr. E. E. Holt, with the assistance of Dr. J. A. Spalding, in conjunction with the officers and fellows of the academy. It is published at Portland.

Le Nord Medical is the name of a new bi-monthly journal published at Lille under the editorial direction of Messrs. Doumer, Lemoine, and Phocas.

Dr. H. Augustus Wilson has resigned as Clinical Professor of Orthopedic Surgery in the Women's Medical College of Pennsylvania.

BOOKS AND PAMPHLETS RECEIVED.

Formalin. By W. W. Alleger, M.D. Reprinted from the Proceedings of the American Microscopical Society, Vol. XV. Washington, D. C.: Judd & Detweiler, 1894.

Climatic Therapeutics in the Treatment of Tuberculosis. By Edward O. Otis, M.D. Reprinted from the Boston Medical and Surgical Journal, 1894.

The Protozoa-like Bodies of Herpes Zoster: A Contribution to the Study of Psorospermosis. By M. B. Hartzell, M.D. Reprinted from the Journal of Cutaneous and Genito-Urinary Diseases, 1894.

Transactions of the American Gynecological Society. Volume XIX, for the Year 1894. Philadelphia: William J. Dornan, Printer, 1894.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

THE TREATMENT OF LACTIC-ACID EXCESS IN THE STOMACH.[1]

BY ALLEN A. JONES, M.D.,

INSTRUCTOR IN PRACTICE AND CLINICAL INSTRUCTOR IN MEDICINE, MEDICAL DEPARTMENT, UNIVERSITY OF BUFFALO.

FROM a series of recent investigations Boas has concluded that lactic acid is not present at any time during digestion in a normal stomach; whereas, it has been taught heretofore that lactic acid is present in healthy digestion during the first thirty or forty minutes after the ingestion of food. It is stated that it is absent not only at that time, but also at all periods of the digestion of a test-meal, whether early or late, whether or not the motion of the stomach is normal or tardy, whether or not dilatation exists, and whether or not hydrochloric acid is present. Only one morbid condition of the stomach, so says Boas, is accompanied by the presence of lactic acid, and that is carcinoma. In this disease lactic acid is said always to be present, and Boas further holds that when it is found in the stomach after a test-meal it is diagnostic of gastric carcinoma.

Notwithstanding that Boas[2] has found lactic acid only in gastric carcinoma, my experience in the matter has been quite different. I have found lactic acid in the stomach during the first part of normal gastric digestion, and also under abnormal conditions, such as persistent diminution in the secretion of hydrochloric acid, an absence of free hydrochloric acid, sluggish motility, gastrectasia, and malignant disease, especially when so located as to cause pyloric stenosis.

In the large majority of cases the treatment of lactic-acid excess simply resolves itself into the treatment of its cause, but in some cases the cause cannot be removed except by surgical intervention, as in gastrectasia from cicatricial pyloric stenosis, and in these cases remedies are demanded that, as far as possible, lessen the production of lactic acid and neutralize it after it is produced, thereby preventing the nausea, vomiting, vertigo, headache, or other distressing symptoms that are largely due to lactic-acid poisoning.

In a short paper upon "The Rôle of Lactic Acid in Gastric Digestion"[1] I mentioned several of the causes of an abnormal presence of lactic acid in the stomach. The first of these causes is deficient secretion of hydrochloric acid, which may result from chronic catarrhal gastritis, gastric carcinoma, debilitating disease, such as tuberculosis, or from what may appear as a secretory neurosis.

The presence of hydrochloric acid in the stomach in normal quantity is usually antagonistic to lactic-acid fermentation, owing, probably, to its antiseptic properties. The endeavor should, therefore, be made to reëstablish a more abundant secretion of hydrochloric acid, by treating the cause or the causes of its diminution. In the case of catarrhal gastritis, lavage, with the use of boric acid or boroglycerid solution, and the aqueous fluid extract of hydrastis, is very useful. It is a good plan to wash out the stomach three or four hours after a meal, so that some contents yet remain for chemic and microscopic study, using at first, until the viscus is empty, simply warm water, preferably that which has been filtered or boiled, then using boric acid or boroglycerid solution; and finally to pour in a mixture of bismuth subgallate with the aqueous fluid extract of hydrastis, a part or all of which may be left in the stomach according to the amount used. At another sitting a weak solution of silver nitrate (2 grs. to 8 oz.) may be used after the mucous membrane is perfectly cleansed. This is one of the most effectual washes in catarrhal gastritis.

The scope of this paper does not permit a detailed discussion of the local and general treatment of gastric catarrh, but I wish to emphasize the importance of removing the causative elements underlying lactic-acid fermentation.

While the various measures used to restore the proper secretion of hydrochloric acid when it is persistently below normal are being carried out, the administration of hydrochloric acid about thirty or forty minutes after meals, in twenty-drop doses of the dilute acid, assists materially in temporarily staying lactic-acid fermentation and in relieving the patient of the sensation of weight, distress, and flatulency.

If the cause of lactic-acid excess is found to consist chiefly in impaired motility of the stomach, strychnin or nux vomica in liberal doses before meals or two hours after meals is attended with benefit. The application of the interrupted cur-

[1] Read before the Medical Association of Central New York, October 16, 1894.

[2] The Medical Week, September 7, 1894.

[1] THE MEDICAL NEWS, December 30, 1893.

rent directly within the stomach stimulates and strengthens the musculature, and thus the stomach is often made to empty itself in due time after each meal, and so fermentation from food-stagnation is prevented. For this purpose also expert abdominal massage by one who reaches deeply, coaxing and pushing the stomach-contents toward the pylorus, often materially assists the stomach to empty itself. Emersonian exercises and certain Swedish movements seem to aid in emptying the stomach, while they certainly indirectly improve its tone.

Theoretically, physostigma increases gastro-intestinal peristalsis, and in some cases of atony it may be used to advantage. The extract may be given in quarter or half-grain doses three times daily, combined with extract of nux vomica and a little extract of belladonna.

Antiseptics are remedies that may sometimes be used to advantage in conditions of deficient hydrochloric-acid secretion, impaired motility, and gastrectasia, but they are not so effectual actually as theoretically they make promise of being.

When from indiscretion in diet, fatigue, or constipation, a sudden attack of gastric fermentation occurs, no drug is better adapted to neutralize the poison and hurry it out of the system than calomel, either in small doses frequently repeated or in one good-sized dose followed by a saline cathartic. Indeed one-twentieth or one-fiftieth of a grain of calomel given about four times daily in a somewhat lasting condition of lactic-acid fermentation acts admirably as a gastro-intestinal antiseptic. The speediest way of ridding the stomach of an excess of lactic acid formed during an attack of so-called "acute biliousness" or "acute indigestion" is by lavage. The noxious elements are washed out, the intestine no longer receives irritating, improperly-prepared chyme, and the mucous membrane of the stomach is immediately soothed. The greatest relief is afforded by lavage in many cases of gastrectasia when the stomach is loaded with acrid, stagnant, poisonous material, some of which has, perhaps, been lying in it for a number of days. No other means as yet practised is capable of giving the relief or accomplishing the good that an occasional lavage does in these cases of food stagnation.

One or two grams of chemically pure sodium bicarbonate one hour before meals promotes gastric secretion and motion, and in some cases lactic acid is found in very much smaller quantities during and after its use. It has been found that soda given later than one hour before meals does not act as well as when it is given in the manner indicated, while if it is given at the beginning of or during a meal, gastric digestion is retarded.[1]

[1] Gilbert and Modiano: The Medical Week, July 13, 1894.

Drugs that are used as gastro-intestinal antiseptics are very numerous. A few seem to be effective in reducing the formation of lactic acid. Benzonaphthol in doses ranging from two to ten grains works well in some cases. It is best given in capsules soon after meals. Resorcin in five-grain doses may be given either in capsules or with glycerin and a little alcohol as a solvent. Oil of eucalyptus is a good gastric antiseptic, and if not administered in capsules it may be advantageously given incorporated in a powder with a little menthol, bismuth subgallate and light magnesium carbonate. When there is much flatulence this combination affords relief, and to it may be added reignited officinal charcoal. Hydrogen dioxid is another antiseptic that has been quite largely used for its effect in the stomach. It is useful in arresting fermentation if given early enough to exert its action before fermentation has gotten well started. Unfortunately the drugs that are used as gastric antiseptics are necessarily given in such small doses that they are "a drop in the bucket" when mingled with the copious mass of semi-fluid, sour, decomposing stomach-contents often present; more especially is this true in gastrectasia with food-stagnation. One of the most effectual drugs in lactic-acid fermentation is pure beechwood creosote in doses of from one to five or more drops given in wine or mucilage after meals. In cases of impaired motility with absence of free hydrochloric acid and with lactic-acid excess, I have seen the latter almost entirely disappear and the former reappear under the use of this drug. Small doses seem to have as much effect as large amounts of the drug.

Sodium sulphite and potassium permanganate are active antiseptics, but in my experience their administration has been attended with a sense of nausea, gastric distress, or vague discomfort, so much so that they have been necessarily discontinued.

There are some cases of dilatation of the stomach due to cicatricial stenosis of the pylorus following gastric ulcer, in which hydrochloric acid is still secreted, but is not found free in the gastric contents when they are withdrawn, because of the overwhelming amount of lactic acid that arises from active fermentation of stagnating contents. In these cases the total acidity is not infrequently raised to 100 or higher, and the administration of hydrochloric acid after meals gives rise to increased distress, amounting at times to a burning pain. While giving hydrochloric acid in such cases I have failed to find it free in the stomach-contents, and at the same time it has been quite noticeable that lactic-acid fermentation seemed rather to be increased than lessened, and the total acidity of already irritating contents was thus raised instead of lowered.

By stopping the administration of hydrochloric

acid and substituting a mixture of cerium oxalate, bismuth subcarbonate, and light magnesium carbonate given between meals and at bedtime, not only was gastric comfort restored, but lactic acid was markedly diminished and free hydrochloric acid was found in the gastric contents. Finally one of the most important of all matters in the treatment of lactic-acid excess is the correction of the diet, the more so as improper diet is the cause of lactic-acid formation in many cases. Milk-puddings, custards, pastry, ice-cream, rich cakes, cheese, thick soups made with milk and cream, fancy entrées made with cream and starches mixed, salads and salad-dressings, all these should be very much restricted or interdicted entirely. It is noticeable that milk and cream when taken alone do not give rise to nearly as much lactic-acid formation as when they are mixed with such starchy foods as creamed potatoes, cornstarch, tapioca, sago, etc.

As a rule, however, it is best to withhold milk at the outset until lactic acid is no longer formed in any but small quantities. Meats, eggs, stale bread, Zwieback, fish, oysters, and other plain foods should constitute the diet until the system is free from the effects of lactic-acid poisoning.

Lowered general health should be overcome by out-of-door life and appropriate exercise, sunlight, proper sleeping-rooms, hydrotherapy, massage, electricity—indeed, all those things that strengthen the nervous system, improve the blood, and increase muscular tone so that the functions of the stomach may benefit thereby.

436 Franlkin St.

RURAL HYGIENE.

By HARVEY B. BASHORE, M.D.,
of West Fairview, Pa.

Outside of the great cities sanitation is sadly neglected. In many of the small towns methods for the disposal of refuse and garbage are almost as crude as when the country was first settled; the drainage is bad, very bad; the drinking-water is in constant danger of pollution, and if a case of typhoid fever appears upon the scene an epidemic is very likely to follow. These defects, too, are not so readily remedied as may appear on casual observation, for the people have not yet learned that it is better to pay a physician to prevent disease than to cure sickness. There still linger, too, in many an out-of-the-way place old superstitions about disease which act as a bar to sanitary development. Of course, I except all such places as Wayne, Pa., and Freehold, N. J., which skillful sanitary advice has made into model towns.

Among the many neglected points, that of surface-drainage and deep drainage is worthy a word: the first has and is receiving some attention, but deep drainage, although shown by the labors of Schloesing, Müntz, and Warrington to be of such great value, rarely receives any consideration whatsoever, and consequently damp soils and high ground-waters are constant factors; but it is a good sign of advancing progress to see that the farmers are beginning to underdrain their swamps and lowlands. Ground-air, too, must be accepted as inevitable in ordinary country houses, for no method seems to be adopted to keep it out; primitive soil forms the floor of the cellar, and the upward draft must be enormous, especially in winter. It is needless to state that the floors of all cellars should be cemented or, better still, covered by a layer of bricks, pitch, and concrete.

The drinking-water is another item of interest, for the well is generally located conveniently to the house, irrespective of the position of the privy-vault, the pig-sty, or the stable; the result is that the water is almost invariably polluted, and it is a wonder that there are not more epidemics. I have before me at this moment the analyses of fourteen different wells, and all save two show an excess of chlorin, which, of course, means more or less animal contamination. This examination for chlorin in well-water, by the way, is very important. What does one care about the amount of albuminoid ammonia, for example, if a well-water contains four or five or more parts of chlorin per 100,000, while the river water, perhaps, thirty or forty feet distant contains only 0.4 per 100,000? Still, a fixed quantity of chlorin can not be relied upon for judging of the contamination. A better way, after taking into account the geologic character of the strata, is to make analyses of a series of wells in the same locality, and the one giving the lowest amount of chlorin will then represent the nearest approach to purity for that district, and any variation can be judged of accordingly. Of course, the presence of chlorin in water may mean only past contamination, but I should hesitate to use a well even if it presented evidences of past pollution only, for the fluctuations of the ground-water currents are so variable that no one can tell at what moment such a well may again become polluted. The proximity of a spring or well to the sea does not necessarily imply the presence of chlorin in the water, for I have found recently in a spring not more than three or four feet above high tide, on the shore of Long Island Sound, less than one part of chlorin per 100,000—as free, in fact, from chlorin as water I took from a Croton tap. Although we have at hand a ready means of judging of the pollution of a well-water, for chlorin-examination is easy, the means of preventing the contamination is yet a matter of study; the only way, it seems, to lessen such pollution is either to remove the wells or to remove the source of pollution, namely,

the privy-vaults, pig-sties, the stables, refuse, household-waste, etc.; and the latter method seems to be the most feasible.

The privy-vault as ordinarily made is not water-tight, and who can say what its drainage-area might be. I lately examined a well-water not within even one hundred yards of a privy-vault or cesspool, and still it yielded 5.1 parts of chlorin per 100,000, and is undoubtedly contaminated by sewage, for it is situated in a non-saline bearing strata, and there is no chloritic shale nor anything else save animal excreta to yield the chlorin; as a proof of this a well not over a hundred feet distant, in exactly the same strata, yields but 1.1 chlorin per 100,000.

To be brief, all privy-vaults should be supplanted by the earth-closet or rather ash-closet; the use of sifted coal-ashes for this purpose is admirable, and a constant supply can be readily obtained. The contents of the closet should be emptied into the receptacle for the stable-refuse, and carted away from time to time. To the practical value of the ash-closet I can certify from personal observation of several years. For the disposal of slops and wash-water a small system of sub-soil irrigation in the back-yard is the best; made with agricultural drain-tiles it is cheap and very efficient.

Pig-sties should be relegated to a place far from the abode of man, or else kept in a more cleanly condition than is usually the case. Garbage and house-refuse should be burned in the kitchen-range. Stable-refuse should be received into a cemented, water-tight receptacle, and should be emptied at frequent intervals.

By some such means as these well-water—for wells will continue to be used in the country for some time to come—may be saved from pollution, and the sick-rate from typhoid fever and diphtheria greatly lessened.

Rural hygiene should receive more attention than is generally given it, for it is a great factor in the sanitary condition of large areas. Typhoid fever in the country ten miles from New York or Philadelphia may not seem to the residents of those cities to be of much consequence, but if it affect the Croton or the Schuykill watershed, it might happen to become very important to those who drink Croton or Schuylkill water.

Concurrent Varicella and Scarlet Fever.—Snell (*Lancet*, 1894, No. 3716, p. 1152) has reported the case of a child four years old, whose two sisters were suffering from scarlatina, and who presented a typical varicellous rash upon the face and body, followed on the succeeding day by a profuse scarlatinal rash. Each exanthem ran the usual course peculiar to itself, desquamation subsequently taking place. About ten days later the two children who at first had scarlatina exhibited well-marked varicellous rashes.

THE OPERATIVE TREATMENT OF INFLAMMATORY PHIMOSIS AND THE USE OF THE SHARP CURET AND STRONG BICHLORID SOLUTION FOR CHANCROIDS.[1]

By WILLIAM P. MUNN, M.D.,
Professor of Genito-urinary Diseases and Clinical Surgery in the University of Denver; Genito-urinary Surgeon to the Arapahoe County Hospital, etc.

The treatment of chancroid located in the coronal sulcus and covered by a long prepuce has as a rule always been unsatisfactory. When the inflammatory reaction creates a practically irreducible phimosis, there has been felt the necessity for operative interference, mingled with the dread of further chancroidal infection of the whole of the fresh wound-surface. In so late a publication as Morrow's *System of Genito-urinary Diseases and Syphilology*, Dr. Edward Martin states that in five cases of circumcision for inflammatory phimosis due to sub-preputial chancroid, in every case a complete circular chancroidal infection occurred. My own experience was until recently practically in accord with his and that of other writers on the subject. Within a short time an opportunity has occurred in eight cases to put in practice a method the results of which have been eminently satisfactory both to myself and to the patients.

The procedure is as follows: (1) anesthetize the patient, preferably with chloroform; (2) thoroughly irrigate the sub-preputial space with a strong mercuric-chlorid solution, not weaker than 1 : 1000, and scrub the parts thoroughly with bichlorid gauze pledgets; (3) perform circumcision rapidly, immediately grasping the raw surface left by the retraction of the skin, with one hand protected by bichlorid or iodoform-gauze; (4) slit the mucous membrane of the prepuce dorsally, back to the corona, and immediately scrub it thoroughly with a pledget of bichlorid gauze, which is at once thrown away; (5) with a sharp curet thoroughly scrape the chancroidal ulcer, removing all granulations clean down to healthy tissue; (6) wash away the *débris* with a bichlorid solution, and then mop up the curetted surface, either with Monsell's solution, full strength, or with a 1 : 100 solution of bichlorid; (7) trim the mucous membrane and suture it to the skin with silkworm-gut sutures placed rather close together; (8) rub aristol or iodoform into the line of coaptation and then into the curetted surface; (9) dress with a thick strip of iodoform-gauze held in place by a rubber band.

In every case the results attained by this method have been practically perfect. The circumcision-wound has united throughout by first intention, with the exception, in two instances, of a trifling

[1] Read before the Denver and Arapahoe Medical Society, October 9, 1894.

point of infection, which healed kindly when touched with pure carbolic acid. The original chancroid in every case was converted at once into a healthy, rapidly granulating ulcer, almost entirely free from discharge. The first dressing, as a rule, has been allowed to remain in position three days, although in two instances it remained a week, and when removed healing was practically complete.

In one case only was the dressing changed after twenty-four hours, mainly in order to inspect the glans penis, the integrity of which I feared might be destroyed, as the chancroid had eaten deeply into the body of the penis back of the corona. Inspection showed the deep ulcer filling up with healthy granulations with astonishing rapidity, and in a week the patient was practically well.

This method seems of importance because:

1. It indicates the uniform and satisfactory results to be obtained by the proper application of antiseptic measures in the treatment of a condition that has always been regarded as refractory and disappointing, as well as disgusting.

2. It indicates curettage as the ideal treatment of chancroid.

To the latter conclusion there is the objection that few patients suffering from what they consider a trivial disorder will submit to anesthesia in order to permit of curettage. The objection is weighty as a practical consideration, but does not invalidate the correctness of the method as a surgical procedure. The uniform rapidity of recovery stamps it as superior to other usual methods of treatment for those patients who are willing to submit to it.

I am impelled to notice the attitude of so eminent an authority as Jacobson, who, in his recent work on *Diseases of the Male Organs of Generation*, seems to have little fear of infection of the wound, but does not appear to accomplish primary union nor even to expect it in hospital-cases that have no infective complications. His treatment of the chancroidal sore with nitric acid is certainly radical and antiseptic; but while it destroys the specific infection, it causes sloughs and necessitates the use of warm fomentations and charcoal poultices, to which he advises resort, while at the same time it absolutely interdicts all hope of primary union. The thorough use of the curet followed by momentary application of strong bichlorid solution is open to none of these objections.

For Whooping-cough in an Infant.—

R.—Sulfonal . . . . . gr. j.
Creosoti . . . . . ♏ij.
Syrupi tolutani } . . āā f ℥ij.
Aquæ }
Misce et fiat mistura.
S.—Two teaspoonfuls to be given every two hours.
—*Provincial Medical Journal.*

CLINICAL LECTURE.

EPILEPTOID MIGRAINE.[1]

By H. C. WOOD, M.D.,
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THE patient before us to-day, a young man, twenty years of age, has been brought from a neighboring city by his physician, with the statement that during the last year there has been on his part a growing inability to understand and remember his studies as a student of law; and also that some years ago he had from five to seven attacks, at long, irregular intervals, of some kind of nervous spells, accompanied by loss of consciousness, and therefore suggestive of epilepsy. It is alleged that there have been none of these attacks within two years; but I find upon careful questioning that, instead of there having been in the first period from five to seven attacks, he had from five to seven groups of attacks, each group being composed of from three to five paroxysms, occurring sometimes within twenty-four hours, sometimes within two or three days, and always followed by some months of normal health. I find, further, that during the last two years there have been numerous "spells," which were similar to the more severe attacks of which he first told, but different in that they have not been accompanied by loss of consciousness. In speaking of the case I shall call these latter *minor* attacks, and the earlier *major* attacks.

According to the statement of the patient, all the attacks from which he has suffered, both major and minor, with one exception, have been ushered in by visual phenomena. A bright star appears, always (the patient thinks, but with distinct uncertainty of memory) on the right side, seemingly at a distance of from six to ten feet, very brilliant, and lasting from five to fifteen minutes, after which it begins to fade out. This fading is accompanied by the appearance of vivid flashes of white light, compared in color to the incandescent electric light, zigzagging about the star, but some distance from it. As the star fades out it is replaced by a spot of darkness; during the next five to fifteen minutes this spot of blindness dilates, until at last it swallows up more or less completely the whole of the field of vision, with disappearance of the scintillations. There has not been any accurate timing of how long these phenomena last, but as far as I can make out they seem to require from twenty to forty minutes for their completion, and are followed by violent temporal headache, with great sickness of the stomach, and a feeling of faintness and general depression, all lasting from two to three hours, and then gradually disappearing. Preceding some, and perhaps all of these attacks, there is a period of some minutes of what seems to be a true mental exaltation, not an emotional exaltation simply, not a great flow of happiness or joy, but a sense of great clearness and power of thought, and an ability to apprehend, not simply to comprehend, the problems of law and of other complicated matters.

In the major attacks the symptoms that have been detailed appeared in regular sequence until they were in-

[1] A lecture delivered at the Neurological Clinic of the University Hospital.

terrupted by an unconsciousness that seems not to have been abruptly but rapidly developed. Mr. X. says that he would try to get as near home as possible before the unconscious period, which shows that there must have been a continuous warning; and he further states that he usually lay down instead of falling when he found he was being overcome. We have no description of what has happened during any period of unconsciousness from any bystander; but it is evident that at least in some of the attacks there were convulsions, as the young man awoke with a badly bitten tongue, and states that bloody foam was about his mouth.

In questioning our patient in regard to the major attacks I elicited the fact that some of them developed in the early morning out of sleep, the patient waking with a cry and lapsing into unconsciousness. This naturally led to the consideration of the possibility of his having nocturnal attacks without knowledge during the last two years. I fail entirely to get such clear proof of the existence of these as would be afforded by a bitten tongue or by urination into the bed. On the other hand, however, Mr. X. is very positive that on two occasions he has awaked in the morning feeling extremely weak and sick, without being able in any way to account for his condition, so that there are good grounds for suspecting that he has had at least two attacks at night.

If there were no history to this case save that of the recent attacks, I suppose any clinician would feel justified in stating to Mr. X. that he was suffering from so-called ophthalmic migraine, that is from migraine accompanied by visual disturbance. On the other hand, if we had only the history of the earlier attacks, the diagnosis of epilepsy would certainly be warranted. Many years ago the brilliant French clinician, Trousseau, asserted that there is a close relation between migraine and epilepsy, and when the symptoms of the two disorders are analyzed side by side certainly a curious parallelism will be seen to exist. Each is an inheritable neurosis; each is essentially a nerve-storm coming on at irregular intervals with a more or less distinct sequence of phenomena. Of these phenomena, in each there is an aura; in each a characteristic central system; in each a final peculiar stage. Then, again, this typical sequence of phenomena is in each disorder variously departed from; and there is in this very departure still a parallelism. In epilepsy the aura is, it is true, most commonly connected with common sensations, and commences in the fingers, in the stomach, in the region of the larynx, etc., as an indescribable mounting wave of feeling; whilst in migraine the aura is very frequently wanting, and when present is usually visual. Nevertheless, possibly in the majority, certainly in a large proportion, of the cases of epilepsy which I have personally seen (and they are numbered by hundreds), the aura has been absent, and every now and then the region of the special senses is invaded, and the epileptic paroxysm is ushered in by bright light or by an hallucination or a vision, such as the case reported, I think, by Dr. Weir Mitchell, in which always a little woman in a red cloak came forward and struck the patient with a hammer, when he fell unconscious; in one case attacks that I believed to be of the nature of migraine were ushered in by a violent, bad odor, showing that it was the nasal and not the visual tract which first felt the commencement of the storm.

Further, in both epilepsy and migraine the whole series of phenomena may be reduced to an aura. I have watched for years three or four cases in which a child would suddenly turn pale, cry out with pain, run to its mother, and in a moment without any loss of consciousness be itself again; the pain recurring at irregular intervals, always in the individual case maintaining the same type, always absolutely intractable to any treatment; going on year after year until there appeared among these paroxysms others plainly epileptic; and until the pain-paroxysms themselves by imperceptible degrees put on the marks of the major disorder, and the whole case ended in hopeless, unmistakable idiopathic epilepsy.

In November, 1893, I was consulted about Miss M., a native of a neighboring city. Her father had all his life suffered from sick-headaches, and she herself in early childhood occasionally had similar attacks. Some months before I saw her, though in apparently good health, she began to have nerve-storms occurring at irregular intervals without apparent cause. Some of them were evidently attacks of ophthalmic migraine; the symptoms being a sudden obscuration of sight, becoming complete in the right eye and lasting two or three minutes; followed by intense headache, gradually increasing in intensity until, after from one to seven hours of mounting agony, there came nausea, vomiting, and relief. In very many of her attacks, however, these symptoms had been absent, save only the obscuration of sight. Here, then, was a typical case of ophthalmic migraine, with the series of phenomena in many attacks reduced to the visual aura.

The matter is made more interesting by the fact that in some cases of migraine the nerve-storm spreads beyond the territory in which it is usually confined, and yet does not distinctly involve consciousness. Thus, in June, 1890, I saw a gentleman from Chicago in whom, without flashes of light or other ophthalmic phenomena, at irregular intervals, a hemiopic blindness developed so abruptly that on several occasions he had put forth his hand to seize an object, but before he reached he had lost it out of vision. This aura is commonly followed by a furious supra-orbital and temporal pain, often ending after a time in very pronounced numbness on one side of the face, including the tongue, and extending into the arm; moreover, in some of the most violent paroxysms there has been very pronounced but not a complex aphasia.

The parallelism between migraine and epilepsy is indeed so curiously complete that at first it seems difficult to escape the conviction that we have two closely related disorders to deal with. This conclusion is strengthened by the occurrence of cases like that of the man before you, in which the symptoms seem half-epileptic and half-migrainous. As showing the rarity, however, of these cases, I may say that in an experience that includes really hundreds of cases of epilepsy and very numerous cases of migraine, I have seen, beside the present case, only two in which there was any reason for suspecting the coexistence of the two disorders. In one case there were paroxysms both of migraine and of epilepsy, one form of paroxysm appearing to me to replace the other. Unfortunately I am unable to put my hand upon the notes that were taken of this case. In the second case, which was remarkable for the character of its visual

aura, it has seemed to me impossible to decide whether the delirium and the unconsciousness, neither of which I witnessed personally, should be considered epileptoid or hysteroid. The patient was a lady twenty-four years of age, with a distinct family history that whilst her mother was free from headaches her grandmother had suffered from the same sort of spells as herself. In this case the paroxysms were very violent, often commencing with a chill, but almost invariably having a visual aura that was variable in character. At times this aura took the form of true megalopsia, her hands and objects in her neighborhood growing in size, until, to use her own words, "they were terribly large," and things in the room finally becoming more than twice the natural size. In some paroxysms this megalopsia was replaced by a vision of her dead aunt or of her grandmother, dressed as for burial, floating in the air. In the most violent attacks this patient would become actively delirious, and in a number of cases this delirium had ended in unconsciousness.

A very strong reason for not believing in the identity or close relationship of migraine and epilepsy is in the apparent lack of hereditary connection between them. But are we sure this apparent lack of connection really exists? My own observation seems to show that the two disorders have no family connection, and I think this is in accord with common observation; but a very careful inquiry for migraine in the family history of a large number of epileptics would be interesting. If the record of such a research exists in literature, it has escaped my reading or my memory.

So far as the present case is concerned, what is the sum of all our ratiocinations? Should the diagnosis be migraine or should it be epilepsy? To the patient himself I would say migraine, but I would caution the family doctor and the parents of the patient that the case may be epilepsy. The attacks of loss of consciousness and the convulsions that preceded the present series of paroxysms certainly make one hesitate to believe that the man suffers only from an innocent migraine.

Even more significant than the phenomena just noted, however, are the peculiar tendency that the paroxysms once had to occur in groups and the present failure of mental power. I cannot remember ever to have seen a case of undoubted migraine in which three or four attacks would occur in twenty-four hours, to be followed by many months of freedom from pain; and although severe migraine sometimes racks the bodily health, it does not impair mentality. Further our patient not only had nocturnal attacks during the first period of his illness, but there is reason for strongly suspecting that during the last two years he has had nocturnal paroxysms that have escaped notice. I myself doubt whether hysteria or migraine or any other functional disorder simulating epilepsy ever comes on during sleep at night, though, curiously enough, in artisans and others who habitually work at night and sleep during the day, the ordinary diurnal attacks may become nocturnal. I have seen a night watchman, who suffering from a severe tertian fever contracted in the Jersey swamps, always had his febrile paroxysms at night.

Dr. F. L. Sim, a prominent physician of Memphis, Tenn., and editor of the *Memphis Medical Monthly*, died recently.

CLINICAL MEMORANDA.

MANIA AND CATARRHAL PNEUMONIA FOLLOWING LABOR.

BY M. M. FRANKLIN,
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SENIOR STUDENT IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.

CLARA W., twenty-one years of age, white, a primipara, fell in labor on July 3d. Upon being called in attendance it was found by examination that the vertex was presenting, its position being left occipito-anterior. The structures of the birth-canal and the pelvic outlet were normal. Labor proceeded fairly rapidly, and terminated at 12 o'clock the same night. It was not until about the end of the second stage of labor that the patient's mental condition first attracted my attention. These manifestations consisted in incoherent statements and hallucinations, which at the time were thought to be caused by the excitement of labor, and would pass away in due season.

Upon examination of the perineum it was found to be partially lacerated; the wound, after being properly cleansed, was approximated by silk sutures, and an iodoform occlusion-pad was placed over the vulval orifice, after which the woman was given a vaginal douche of a solution of mercuric chlorid, 1:5000, twice a day until the wound healed and the stitches were removed.

Upon visiting her the following day I found her mental condition slightly improved, yet it was with the utmost difficulty that the patient was kept under control and in bed from the second day on. From the morning after labor her temperature and pulse remained practically normal, with one exception, when, on the 5th of July, the second day after labor, it rose to 100.2° F. This rise was attributed to constipation, the bowels not having been moved for two days. The woman was then given an enema, which was followed by a bowel-movement, after which the fever subsided. The fluctuations in temperature are shown in the annexed table:

Date.	Temperature.	Pulse.	General condition.
July 3, P. M.	100.4°	80	Good.
" 4, A. M.	99	74	Excellent.
" 4, P. M.	99.1	68	"
" 5, A. M.	98.4	78	"
" 5, P. M.	100.2	78	Fair.
" 6, A. M.	98.4	80	Excellent.
" 6, P. M.	98.3	84	"
" 7, A. M.	98.3	80	"
" 7, P. M.	98.4	82	"
" 8, P. M.	98.4	78	"
" 9, P. M.	99	80	"
" 10, P. M.	98.4	84	"
" 11, P. M.	103.3	100	Fair.
" 12, A. M.	104.4	156	Bad.
" 12, P. M.	105	158	"
" 13, A. M.	108.1	...	"
" 13, P. M.	108.2	...	"
" 14, A. M.	109.2	...	"

On the afternoon of the 11th of July, eight days after labor, the temperature suddenly rose to 103.3°; the pulse was 100 per minute, and there were increased nervous disturbance and severe headache. The bowels, having been neglected for twenty-four hours, were then opened,

and a powder of potassium bromid and caffein citrate administered. Iced cloths were applied to the head. A sample of urine was procured at this visit and carefully examined, both chemically and microscopically, but was found to be normal.

The next visit was made early the following morning; the temperature was found to be 104.4° and the pulse 156 per minute. The general condition was alarming, and a consultant was called in, who, after a thorough examination of the pelvis and chest, thought it best to curet and douche the uterus to make certain as to septic infection, and this was done with entirely negative results.

After the operation was concluded the patient was put in an ice-pack to reduce the hyperpyrexia, and was also given $\frac{1}{10}$ grain of the mild chlorid of mercury every thirty minutes until the bowels were freely moved. Her general condition being very poor and the heart's action weak, she was ordered strychnin sulphate, grain $\frac{1}{60}$, and a half ounce of brandy in milk every two hours. At the evening visit her fever was still increasing, the temperature in the axilla reaching 105° and the pulse 158 per minute.

Finding that her general condition was growing steadily worse, it was decided to call in a second consultant, who, after repeated examinations of the chest and pelvic cavity, concluded the case to be one of septicemia, although no local evidence upon which to base the diagnosis could be found.

The physical signs of disease of the lungs were absent, and kidney-disease was also excluded. No evidence of disease existed in the pelvis, and by a process of exclusion the diagnosis of septicemia was tentatively made, not because there was evidence of sepis, but because of the absence of signs of other disease, and from the fact that sepsis has been known to occur when it has been carefully guarded against.

The patient was placed at once upon tincture of ferric chlorid, quinin, and the infusion of digitalis; also ice-packs to reduce the fever were ordered. On seeing her late that evening her condition was the same as in the afternoon.

The following morning she was found to be moribund, her fever still increasing, the axillary temperature reading 108.1°. The pulse could not be counted. Her condition that afternoon remained practically the same as in the morning. The ice-packs and treatment were vigorously kept up, but without avail; her fever continued to rise, and finally reached 109.2° in the axilla a few hours previous to death, which occurred July 14th at 2 P.M.

The autopsy showed a normal abdominal cavity, the peritoneum not injected, and no signs of inflammation were present. The appendix was free, the mesenteric glands were not enlarged and the intestines were normal. The uterine appendages were free and normal; the uterus was slightly larger than it should be twelve days after delivery. Upon opening the uterus there was no odor and no evidence of suppuration, the appearances being entirely normal. The spleen was slightly larger than usual; the liver was normal, likewise the kidneys, the capsule stripping off easily. The heart was rather larger than normal, flabby, and the right ventricle seemed dilated. The valves were normal, with the exception of a slight calcareous deposit on one leaflet of the mitral valve. There was a diminution in the amount of the pericardial fluid, but the pericardium was normal. There were a few adhesions at the apex of the right lung posteriorly, and slight crepitation throughout. On section the lower lobe was congested, and there were some small areas of consolidation. The left lung was adherent throughout, the entire parietal pleura stripping off, leaving a raw, rough, red appearance; there was some slight crepitation throughout, which was more marked at the apex. The lower lobe had a more solid, firmer feeling. On section there was some edema, with small areas of consolidation distributed throughout the entire lung, but more marked at the lower portion. These areas appeared reddish-brown, and the section presented a peculiar mottled appearance. The pathologic diagnosis was catarrhal pneumonia, which was confirmed by microscopic examination.

AN ABSCESS OF THE BRAIN CAUSED BY A NAIL IN THE HEAD.

BY J. W. FELTY, M.D.,
OF ABILENE, KANSAS.

DURING the latter part of September, 1893, a call was left for me to see Mrs. R., fifty-six years old, living in our city. My brother answered the call and reported a case of apoplexy. Upon inquiry he learned that Mrs. R. (who lived with her son-in-law) had been unusually despondent for a week or more, and had been "in a rage" for some days, refusing food and drink. The necessity for these preliminary remarks will become apparent. There was in her case a history of insanity for five or six years, and the woman had been unusually eccentric and queer all through life. The family had noticed nothing very unusual about her demeanor of late except her despondency, and paid little attention to her actions. They heard her walk about in her room during the night, and as usual, on the following morning she was called for breakfast. She would not respond, calling instead for one of her grandchildren to come and see her foot and leg jerk. When asked by her daughter to move the leg, she did so, but with the greatest difficulty, and in a few days was entirely unable to move it. When asked how and when this happened, she appeared to know nothing about it.

When visited she complained of no pain at any point, but said "my legs feel funny," and a choreic, spastic or convulsive movement of the lower extremity was observed. On the following day similar symptoms affecting the whole left side and upper extremity could be discerned. She was seen from day to day for six weeks, but treatment with ergot, iodids, and later with electricity, was of no avail. I should add here that her temperature was a degree or a degree-and-a-half above normal, her pulse 90. Her speech was hesitating, but correct; her eyes somewhat blurred, and her general mental condition more or less sluggish. By the end of the tenth day she had lost control of her left lower extremity, side, and upper extremity, with paralysis of sensation as well as of motion, and she grew rapidly worse. By the end of the second week her temperature became subnormal, her pulse remaining normal. The case was regarded as a hopeless one. About six weeks after my brother first saw her the family reported that she was having quite a rest-

less spell, and also that she had a very hard scab on the top of her head, which was discharging pus and causing some pain.

It was at this time that I made my first visit. The woman had complete paralysis of motion and sensation of the left side and the upper and lower extremities. She was averse to interference of any kind. She was suspicious that something was wrong when so many doctors were needed. Upon examining the ulcerated surface on her head I found what I first thought was a large-headed carpet-tack. The ulceration at this point did not exceed a half-inch in diameter. I removed from this spot a nail one-and-a-half inches long, which had been driven down on a level with the scalp, at a point one-half inch back of the coronal suture over the longitudinal sinus. Up to this time we could elicit no history of injury, no evidence of violence, no signs of blood. The woman was walking about in her room six weeks before, but she undoubtedly had the nail in her head six weeks after she became paralyzed. The question naturally arose, "Was it possible for her to drive the nail where I found it, and how was it done?"

Upon calling her to task about her actions, I asked her how this nail got into her head. She denied all knowledge of it, and claimed to know nothing about it, or of any injury she had sustained. I reported the facts in the case to her daughter, for I suspected that the woman had herself driven the nail in her head, and asked the daughter to get a confession from her mother if possible.

The following day the woman confessed to having placed the nail there herself, the motive given being that Satan must have been with her when she did so. I could not establish accurately how it was done, but surmised that she placed the point of the nail on her head and then forced her head against the solid headboard.

From the history of wounds generally, the nature of this particular one, and the appearance of the nail, I believed, after a careful study of the case with my brother, that we had a case of fracture of the internal table of the skull, and primarily a depression; the nail being septic, a secondary abscess resulted. How the nail could be driven down through the skull over the median line, corresponding to the longitudinal sinus, and not pass through it, seemed strange, but such was certainly the case.

We had first a septic wound; second, in all probability, a depressed fracture; third, paralysis indirectly due to the nail. Our line of duty was very apparent, and we told the family what should be done, and they readily consented.

Believing that the nail passed through the longitudinal sinus, the skull was trephined one-half an inch to the right of the median line, thus giving an opportunity to ascertain the nature of the fracture and the injury. The nail had not penetrated the sinus, and it made an opening almost as smooth and clean-cut as if made with an auger or gimlet. My second trephine-opening was then made through the course of the nail. After removing the trephine-discs, I opened the abscess with a grooved director and forceps, and removed about two ounces of pus. I made a free incision through the abscess-sinus and washed out the cavity with warm boric-acid solution. In exploring the abscess my grooved director was passed to a depth of three or three-and-a-half inches without the least resistance, the abscess apparently communicating with the right ventricle of the brain. A rubber drainage-tube was left in the abscess-cavity, and the wound closed. On the following day the temperature rose to 100.5° and the pulse to 100, but at no time was there an appreciable change in the paralyzed muscles. The woman remained conscious until the fifth day after the operation, when she became semi-conscious, and died on the seventh day after the operation.

The autopsy revealed the fact that the abcess had communicated with the right ventricle of the brain, which was found filled with pus and cerebral fluid. The brain-substance surrounding the abcess and the walls of the ventricle were highly congested.

Two interesting questions arose in my mind in connection with this case: First, where would the point of a six-penny wire nail be found in the brain under the conditions described? Second, was there any hemorrhage at all, or were the convulsive movements due to the inflammation around the nail from septic infection? It will be noticed that paralysis did not take place at once, as in case of hemorrhage, but five or six days afterward.

DIARRHEA FROM POTASSIUM IODID.

By DOUGLASS W. MONTGOMERY, M.D.,
Professor of Diseases of the Skin, Medical Department of the University of California; Consulting Physician for Diseases of the Skin and for Pathology, German Hospital.

If a drug is given in order to compass some distinct purpose, and succeeds, we call its action a direct effect, and retire, like King Malcolm, in measureless content, as nothing is quite so satisfactory as the successful administration of a remedy. But, if, in addition to or instead of the action desired, some unexpected or disagreeable result follows, we are correspondingly chagrined, and we call this an oblique action of the drug. When potassium iodid is prescribed it is not intended as a purgative; nevertheless, in rare instances, it causes, as an oblique action, a severe diarrhea.

An accountant, aged twenty-five, came to me March 6, 1892. He had been exposed to venereal infection five months previously, and shortly afterward had noticed a stickiness of the meatus and an indolent swelling in the right groin, which did not break down. He had also remarked some pain and induration along the urethra, near the meatus. When he first came to me the right lip of the meatus was slightly enlarged and bluish in color. There were a roseola on the trunk, especially on the abdomen, without subjective symptoms; patchy thinning of the hair of the head and a papular rash on the scalp. He had also enlargement of the posterior cervical glands, and of those in the right groin, but no enlargement of the epitrochlear lymphatic glands. There was one flat condyloma on the left natis, and two smaller ones on the right. He suffered from habitual, though slight constipation, which was easily corrected by eating brown bread and molasses for breakfast. He afterward had a papular rash on the head of the penis, and from time to time suffered from mucous patches in the mouth.

Toward the end of August, 1892, that is, about six months after first coming to me, and in the eleventh month of his disease, his hair began to fall out again,

and a red, ill-circumscribed, slightly raised roseola appeared, principally on the back and belly, and distinguishable from urticaria by the absence of itching. This was an instance of the rarely observed late roseola of syphilis, which often assumes the form of rings over the trunk and limbs, and is likely to be mistaken for erythema multiforme.

The man afterward suffered from an excoriation or ulcer on the outer wall of the right nostril, which healed in a reasonable time under black wash locally and mercuric iodid internally.

On May 15, 1893, in the twentieth month of his disease, potassium iodid was prescribed for the first time, and in moderate doses—sixteen grains a day for sixteen days. As soon as he commenced taking the drug, copious watery diarrhea set in, and persisted during the whole time of its administration. The patient, thinking the diarrhea part of the effect desired, continued the remedy until the bottle was finished, without returning to consult me. When I saw him shortly afterward he was reduced from a robust, fine-looking fellow to a pale, wan shadow, with the appearance of being in the last stages of pulmonary tuberculosis. He quickly regained his lost flesh and ordinary health.

There can hardly be any doubt that the diarrhea was caused by the iodid, as it commenced on taking the drug, continued during its administration, and ceased when the medicine was discontinued. Moreover, the man remembered having had a similar diarrhea on taking a "blood-purifier," and patent medicines of this class almost always contain potassium iodid.[1]

This man was getting one of the best brands of the drug, so it is not likely that the diarrhea was caused by the presence of free iodin or iodates, frequent impurities in the cheaper grades. It seems to be very difficult for manufacturers to make pure potassium iodid, and for this reason the good brands are dear, but in no case does their price preclude their being dispensed at the usual rates, leaving a fair margin of profit.[2]

Both Fournier[3] and L. Lewin say that although sometimes the inconveniences complained of in taking potassium iodid may be due to impurities in the drug, yet such impurities are not always the cause of the accidents, as they may happen in the course of the use of an absolutely faultless salt.

An Early Sign of Pericarditis.—At a recent meeting of the Société de Biologie JOSSERAND (*La Médecine Moderne*, 1894, No. 89, p. 1386) called attention to a clanging murmur heard in the pulmonary area more distinctly than to the right of the sternum at an early stage in a case of pericarditis, and which he considered of diagnostic value.

[1] Diarrhea, either with or without vomiting, has been observed even after small doses of potassium iodid. Sometimes the dejections contain blood. (Nebenwirkungen der Arzneimittel. L. Lewin. Zweite Auflage, S. 407.)

[2] In Henry Koplik's case of iodism in a nursing infant (The Medical Record, September 24, 1887), the drug seems to have given rise to irritation all along the alimentary canal, for there were dyspeptic symptoms, some looseness of the bowels, and a little increased secretion in the nose, in addition to the skin-eruption.

[3] Fournier (Traitement de la Syphilis, p. 418) tells of an eminent chemist who himself used to purify the potassium iodid prescribed for him.

MENINGITIS COMPLICATING INFLUENZA; AUTOPSY.

BY HERMAN B. ALLYN, M.D.,
OF PHILADELPHIA;
INSTRUCTOR IN PHYSICAL DIAGNOSIS, UNIVERSITY OF PENNSYLVANIA.

THE patient was a man eighty-two years old, a widower, temperate, and of excellent habits. He had enjoyed good health until the past five years, in which time he is said to have had one or two illnesses in which he became violently delirious. He has for several years suffered with vertigo, dyspepsia, lumbago, and constipation, largely the result of a general arterio-sclerosis. He presented mitral and aortic systolic murmurs not associated with any edema. On March 9, 1894, I found him suffering with influenza, brought to him, no doubt, by another member of the family, who, suffering with the disease, had returned a few days before from a distant city. The patient complained of headache, sore-throat, and cough, but especially of the cough, and of severe pain on the right side, anteriorly at about the seventh rib. This spot was extremely tender as well as painful. There was pain also in the back and in the left side of the abdomen. There was general bronchitis. On account of the fever and severe pain in the right side it was feared that a pleurisy or pleuro-pneumonia might develop, but no dulness or friction-sounds appeared. Gradually the patient became more and more delirious at night. The delirium would begin in the afternoon and last until morning, when he would become rational, but not uninterruptedly. He seemed to feel worse when he was lying down, and it was with great difficulty that he was kept in bed. Sleep was in short snatches, and was very uneasy. At times he was violent, and once he tried to jump out of the window. His most constant delusions were that he was away from home and that he was compelled to work at night in a mill, although, as he would explain to me pitifully, "I am no longer strong enough for such hard work!" Bromids, chloral, morphin, sulphonal, and trional were successively tried in an effort to overcome persistent insomnia and to lessen delirium; each drug failed in turn, and was discontinued. Finally, hyoscin hydrobromate, in doses of gr. $\frac{1}{96}$, repeated once when necessary, proved comparatively satisfactory. It was given in the latter part of the afternoon and at night.

At first the man took sufficient nourishment, but in the last two weeks of his life it was difficult to get him to take anything. During most of his time, especially during the last week, his arms and legs would twitch, and they were kept pretty constantly in motion. His urine contained only a small amount of albumin. Through some oversight it does not seem to have been examined for casts, or the record has not been preserved. Previous to the last illness the urine contained neither albumin nor casts. During the last week of his life his urine was passed involuntarily in bed, and his bowels were not moved. During this time coma succeeded gradually upon delirium, and the patient remained in bed. He seemed to have pain when moved, and to be disagreeably conscious of touch when no longer able to see or hear. He died in coma, April 7, about one month, therefore, from the beginning of his influenza.

The autopsy was performed thirty-six hours after

death by Dr. W. S. Carter and myself. The lungs were found normal. The heart-muscle was soft and friable; the mitral orifice was dilated, while the aortic cusps had on them a few atheromatous nodules. The left ventricle was somewhat dilated and hypertrophied. The liver was fatty and cirrhotic. The kidneys were contracted; they contained a few old infarcts and one recent infarct and a few minute cysts. The cortex was much shrunken, especially in the left kidney. The right suprarenal body was replaced by an old cyst enclosing rough, brownish material. The colon contained a number of scybalous masses. There was no peritonitis. The stomach was not examined. The spleen was not enlarged. The cortex of the brain showed much injection of the vessels and opacity of the pia and arachnoid, which were somewhat adherent to the brain-substance. The lymph-spaces were dilated and prominent. A gelatinous substance was seen over the cortex. There was no pus. At the base of the brain the changes were the same, but without the gelatinous substance. The arteries of the circle of Willis were atheromatous, and a few minute aneurisms were visible. The lateral ventricle was dilated. The cortical brain-substance was of deeper color than normal.

In THE MEDICAL NEWS, May 14, 1892, I reported three fatal cases of cerebro-spinal meningitis, with autopsies. In these cases the clinical history was very different from that of influenza. In the case just reported the ordinary symptoms of influenza were well marked, and other members of the family suffered with it in its ordinary catarrhal form.

NEW DEVICE.

A FACE-GUARD FOR EXAMINING INFECTIOUS THROATS.[1]

BY J. MADISON TAYLOR, M.D.,
PROFESSOR OF DISEASES OF CHILDREN, PHILADELPHIA POLYCLINIC, ETC.

THIS simple device for protecting the operator's face while examining the throats of those who are suspected of diphtheria or other contagious disorders serves a good

end very practically. There is constant need in dispensary-work among children to deliberately and fully explore the throat, and during this process much spluttering of mucus and saliva occurs, which flies in the direction of the physician or nurse, and might well be spared them. In making the needful applications to diseased parts, too, this can be done more quietly and thoroughly if one's face be protected. The chief value of the guard I find in enabling me to secure material for bacteriologic research, which often requires some judgment in selecting the precise area from which to take it. An assistant can best hold the guard, made of plain glass in a thin metallic frame, or the mother can do so. The size is small, 5 x 8 inches, just enough to cover the face, and not too large to carry in the ordinary small instrument-satchel used by physicians. The glass slides out of the frame readily for thorough cleansing, or the whole can be laid in a sterilizing tray. This is found more useful than anything attached to the head, more likely to be promptly used, and its convenient size enables it to be carried about.

[1] Exhibited before the Philadelphia County Medical Society, December 12, 1894.

MEDICAL PROGRESS.

The Toxins and Antitoxins of Typhoid Fever.—As the result of experimental observation, PFEIFFER (*Deutsche medicin. Wochenschrift*, 1894, No. 48, p. 898) has found that the poison of typhoid-bacilli is contained principally in the bodies of the bacilli, and that by treatment of cultures with chloroform-vapor or by heating at a temperature of 129.2° F. for an hour the bacilli may be destroyed, without injury to their contained toxins. In the blood-serum of animals rendered immune by means of the typhotoxin antitoxins appear capable of exerting a specific bacteriologic influence upon typhoid-bacilli, but without greater effect upon colon-bacilli and other microörganisms resembling typhoid-bacilli than is produced by normal serum. Similar antitoxic substances are demonstrable in the blood of convalescents from typhoid fever.

Pre-tuberculous Albuminuria.—At the recent French Congress of Internal Medicine, TEISSIER (*Le Mercredi Médical*, 1894, No. 46, p. 559) cited a number of cases that led him to believe that some cases of tuberculosis were preceded by the development of albuminuria. The most striking features of this condition observed were its intermittence, with irregularity of recurrence, its occurring most commonly in the morning, and its association with phosphaturia. It alternated with attacks of catarrhal bronchitis or congestive phenomena of varied kind, disappearing with the development of the pulmonary disease. The condition is attributed to renal congestion of toxic origin from the action of the products of the tubercle-bacillus.

Orchitis due to Effort.—D'HAENENS (*La Policlinique*, November 1, 1894, p. 352) has reported the case of a man, forty-nine years old, who, following a violent effort, was seized with extreme pain followed by swelling of the left testicle. The epididymis also became enlarged to thrice its normal volume. The patient denied venereal infection, and examination failed to disclose a lesion of the genito-urinary tract. The pain was intense, and symptoms of local peritonitis appeared. The explanation of the occurrence is that the testicle was injured by

contractions of the cremaster muscle in great physical effort. The indications in treatment include rest, together with the application of moist warm dressings and compression.

Hodgkin's Disease in Children.—KISSEL (*Wratsch*, Nos. 23 and 24; *St. Petersburger medicinische Wochenschrift*, 1894, No. 42, Suppl. No. 9, p. 49) has reported the case of a boy, eleven years old, who presented submental glands as large as a goose-egg, with enlargement of the remaining glands. The spleen extended four fingers' breadth below the costal margin. The number of white blood-corpuscles was not increased, that of the red was diminished, and there were numerous poikilocytes. Periodically the temperature would rise as high as 105.4°, with increased size of spleen and lymphatic glands, followed by reduction in size. Two other cases of similar kind were observed in children aged four and four-and-a-half years respectively.

Ablation of the Supra-renal Capsules in Dogs.—As the result of an experimental investigation, PAL (*Wiener klinische Wochenschrift*, 1894, No. 48, p. 898) concludes that in dogs the supra-renal capsules are not essential to life, and that their extirpation is not attended with symptoms that could be ascribed to the removal of the influence of an inhibitory center governing the bowel. On the other hand, there results profound derangement of the nutrition, which the animal may overcome. The relation between the operation and this alteration in nutrition requires explanation.

Scarlatina and Measles in the Same Person.—FERGUSON (*British Medical Journal*, No. 1764, p. 868) has reported the case of a boy of nine years in which, during the progress of an attack of scarlatina, severe coryza and a constant irritating cough developed, shortly followed by a most intense eruption of measles. Desquamation, which had begun at the onset of the complicating condition, seemed to be accelerated. The child made an excellent recovery. It was not possible to trace the source of infection.

THERAPEUTIC NOTES.

Treatment of Diphtheria with the Antitoxin.—HAGER (*Centralblatt für innere Medicin*, 1894, No 48, p. 1121) reports the results obtained from the employment of the antitoxin in the treatment of 25 cases of diphtheria between August 20th and November 1st, 1894, and in the prophylaxis of 35 children in the infected families. The children attacked were between eight months and sixteen years of age. Recovery took place in all but one. This occurred in an infant, eight months old, that was almost moribund when the treatment was undertaken. Of the 25 cases 8 were mild, 6 of moderate severity, and 10 severe and grave. In some cases an urticaria-like erythema appeared at the site of injection, but other complications were not noted. Of the 35 cases treated prophylactically one was subsequently attacked, but reacted favorably to 500 antitoxin-units and recovered. Two other children had light attacks, but recovered without treatment. In the majority of cases the diagnosis was established by bacteriologic examination.

MOELLER (*Centralblatt für innere Medicin*, 1894, No. 48, p. 1130) reports the results obtained from the employment of the antitoxin in the treatment of diphtheria at the Magdeburg-Alstadt Hospital between August and November, 1894. Mild and moribund cases were excluded from this mode of treatment. From April 1st until November 8th there came under observation 388 cases, of which 162 required tracheotomy. Of the whole number 76 were treated with the antitoxin; 48 of these required tracheotomy, with 19 deaths and 22 recoveries, while 7 were yet under observation. Of the 28 not requiring tracheotomy 8 died, 15 recovered, and 5 were yet under observation. Of the 312 cases not treated with the antitoxin, 114 required tracheotomy; of these 57 died, 45 recovered, while 12 were yet under observation. Of those not requiring tracheotomy, 34 died, 136 recovered, and 28 were yet under observation. From April 1st, 1888, to March 31, 1889, the mortality of cases in which tracheotomy was required was 59 per cent.; from 1889 to 1890, 57 per cent.; from 1890 to 1891, 51.43 per cent.; from 1891 to 1892, 48.6 per cent.; from 1892 to 1893, 63.4 per cent.; from 1893 to 1894, 64.2 per cent.; from April 1st to November 8th, 1894, 55.6 per cent. among cases not treated with the antitoxin and 39.6 per cent. among cases treated with the antitoxin.

Picrotoxin, in doses of gr. $\frac{1}{60}$, three times a day, is recommended by TALLEY (*Philadelphia Polyclinic*, vol. iii, No. 49, p. 482) for the relief of the severe nervous symptoms often coexisting with uterine and ovarian diseases. The symptoms usually complained of are flashes of heat, cold creeping sweats, cold hands and feet, flatulence, constipation, palpitation of the heart, and melancholia. The patients are easily confused; are suspicious and brooding; flush when addressed; have a sensation of impending calamity; and are generally wretched; memory is impaired; there occur spells of crying; crowds and public places are avoided. Constipation when present should be relieved.

The External Application of Guaiacol.—BRILL (*Centralblatt für innere Medicin*, 1894, No. 47, p. 1097) has employed guaiacol by external application in four cases of pneumonia, five of typhoid fever, four of pulmonary tuberculosis, one of bronchitis, and two of articular rheumatism, and found that the remedy in doses of from 23 to 45 minims could be relied upon to energetically reduce the temperature, although it also caused extremely unpleasant secondary manifestations. In eighteen other cases, principally of rheumatic character, the agent in doses of from 12 to 24 minims exercised an analgesic influence without unpleasant complications.

The Therapeutic Use of Extract of Bone-marrow.—BILLINGS (*Bulletin of the Johns Hopkins Hospital*, vol. v, No. 43, p. 115) has reported a case of chlorosis, one of chloro-anemia and two of pernicious anemia, treated with a glycerin extract of bone-marrow. The two cases of chlorosis were benefited, while the two cases of pernicious anemia remained unimproved.

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SATURDAY, DECEMBER 29, 1894.

A COLONY FOR EPILEPTICS.

No more deserving scheme appeals, or ever has appealed, to the people of Philadelphia, and, in fact, of the State of Pennsylvania, than that which has for its object the establishment of a farm, or colony, for epileptics. It is a marvel, indeed, that such a scheme was not suggested long ago, and that among the innumerable charities of this great city and commonwealth this plan for the comfort and welfare of epileptics has been neglected until this late date.

The epileptic is, or ought to be, in a peculiar sense, the ward of the State. His disease exposes him to the curiosity of the vulgar and to the aversion of the ignorant, but it ought rather to win for him the protection and encouragement of the public. Since the evil days when he was regarded as specially afflicted by Providence, and possessed of a sacred malady, until the present era, when he is confined in almshouses or made to associate with lunatics, he has apparently been avoided by humanitarians as a strange and bad case. It is too true that a certain proportion of epileptics are mentally impaired, and that this class may continue to require restraint; but it is also true that a large number of them are, for all practical purposes, of sound mind for the vastly greater part of their time. The lot of one of these unfortunates is a particularly hard one. He lives constantly under the terrifying shadow of an impending calamity. The blow, which may fall but seldom, and the effects of which may endure for but a few hours, does more injury to his fortune and career as a citizen of the State than would many of the worst deformities or the most disabling accidents. His is a disease that respects neither time nor place, and in its mere potentiality for evil is worse than an actual disaster. Its mysterious character, which so struck the ancients, is one of its most dreadful features. Its victim is never exempt from the suspicion of impending doom. He can neither thwart nor provide against the inevitable but invisible foe, and the fact of his uncertain tenure of his own free-will and consciousness is the cause at once of his shunning and being shunned. He may be actually impaired for but a few hours in every month, but those few hours dominate and give character to his whole life.

For a person so grievously and yet, in some cases, so slightly afflicted the urgent need is for an environment amid which the evil effects of the malady can be discounted, and even to some extent eliminated. This can be accomplished only in a special settlement. The average epileptic cannot succeed in business, nor in even the most humble service. The story of his career in ordinary social and industrial life is a sad one. According to the report of the National Hospital for the Paralyzed and Epileptic, of London, "out of seventy epileptic patients, thirty-eight had lost situations owing to fits, and could get no one to employ them; twenty-seven could get no work, as they required too much supervision; two worked at their own homes; two got work occasionally, but nothing permanently—always discharged on account of fits; one had to leave a well-paid place on the railway, and become a road-sweeper."

The necessity for proper provision for epileptics may be appreciated when it is stated that in the United States there are probably 120,000 of these unfortunates; in Pennsylvania, between 5000 and 10,000; and in Philadelphia at least 2000. What other class, so numerous and so afflicted, has been so ignored in our midst? With the exception of one ward in the Philadelphia Hospital, there is no special public provision for these patients in this

city; but the scheme at Blockley does not, and, of necessity, cannot, provide them with occupation and diversion.

The one institution in this city and State which has shown an intelligent appreciation of the claims and wants of the epileptic is the St. Clement's Hospital. Originally established by a church as a general hospital, its design was changed, and it has been devoted exclusively to epileptics now for two years. It was thus the first institution in this country devoted to the care of epileptics, but it has since been outstripped by similar institutions in two other States. In its annual report, just issued, a statement is made of the design of the managers to establish a colony-farm. Such farms have been established in Germany, Holland, Switzerland, France, and England; and in several States of the Union movements toward the establishment of similar colonies have been started. A strong appeal, signed by the medical staff, accompanies the report of St. Clement's. In this it is stated that the main object is the establishment of a colony-farm where all of the patients could have employment of some kind, which would not only aid in their support, but would make them happier and better, and—it might be added—healthier and more exempt from their fits.

We are gratified to see that this subject of the proper care of epileptics receives special notice in the Eleventh Annual Report of the Committee on Lunacy for Pennsylvania. The report includes a letter from DR. HACK TUKE, referring to the colony for 800 epileptics which it has been decided to found near London. It also gives a brief account of the admirably-planned institution near Gallipolis, Ohio, which has been established by a liberal grant from the Legislature of that State.

It thus seems that the subject of a colony-farm for epileptics is well under consideration in this State. With the recommendation of the Lunacy Committee, with an aroused public and professional interest, and with a small, well-equipped special hospital already existing as an example, it is more than probable that both public and private funds may be called upon confidently for help.

In this connection we may suggest that State charity should be relied upon to support especially the more chronic and insane cases; while the efforts of St. Clement's Hospital might be directed to ameliorating the condition of the milder cases and of those who are capable of profitable toil and even of intellectual pursuits.

THE MILK-QUESTION.

FARMERS naturally resent the recent rules of the Board of Health, but it would be well for them to remember that the board is rather behind than ahead of educated public sentiment. The first rule was an order for inspectors' certificates to be signed by a local reputable veterinarian, and no demand was made for the tuberculin-test. This position was found to be untenable, and reluctantly the tuberculin-test applied by an expert was required, as inspection even by the best-educated eyes notably failed to detect tuberculosis in diseased cattle.

It is quite safe to say that the present movement has "come to stay." For years we have been improving or trying to improve our surroundings, sewering, trapping, and ventilating traps, putting all our ingenuity at work to remove the known sources of disease, while all the time the advanced science of the day knew that we were throwing wide our doors and inviting the most deadly contagion into our houses, and offering it to our friends and children in our milk-supply. This knowledge, once the possession of the few, is now rapidly becoming the possession of the many, and either milk must go or it must come to us in unquestionable shape.

It is no longer its integrity, the amount of cream that rises, the amount of suspected diluents in it, or even the artificial aid of color, thickening or preservative. It is simply the question of germs, and already the use of milk is lessening. Thousands of families boil it. Thousands avoid it when possible, and with good reason, for milk has been proved to have conveyed to the human race:

Tuberculosis, typhoid fever, scarlet fever, diphtheria, dysentery (amebic), cholera infantum, cholera, and ulcerative stomatitis.

It also labors under far more than a suspicion of having extensively carried influenza, especially in its gastric and enteric forms. It would not be impossible, under a universal public disgust, for the whole business to be ruined. The conservatism of the kitchen still holds on to it in cooking; but it seems probable that very soon we shall have recipes for all necessary dishes without it. Science can do that much if called upon.

Cream, so difficult to sterilize, will find less and less use. The farmer will not need to rob the few quarts he handles; and butter—well, the Eastern nations clarify it by heat into a sort of oil, which they admire, and which the biologist will probably

consider safe; but lands flowing with milk and honey will no longer excite longing anticipations or cause wars for the acquisition of such enticing territory, for the honey of to-day, if we believe the food-pessimist, is but a flavored glucose in artificial combs, and the milk that should normally flow beside it may well, in the coming days, be also a chemic product. So it seems possible that the only thing that can arrest the rapid descent of the cow and her products is this very inspection—an inspection so thorough as to command—that hardest of all things to command—perfect confidence.

EDITORIAL COMMENTS.

The Combination of "Piety," "Journalism," and Quackery. for exploitation of the bamboozled public continues, but there are evidences of some differences of opinion among the partners in the unholy business. That sturdy exposer of electric humbugs, *Electricity*, is giving out some studies that add greatly to "the mirth of nations." The agents and proprietors of a widely-advertised bit of trumpery have met some editors and publishers of religious journals who refused their proffered advertisements. Prominent among these we are pleased to honor by mention MR. TRUMBULL, editor of the *Sunday-School Times*, who justly takes pride in the fact that his journal rejected an advertisement "before the members of the electrical profession seemed to be aware of its unsavory character," and DR. BUCKLEY, of the *Christian Advocate*. But Dr. BUCKLEY'S letter containing his indignant assertion that the advertisement was "rejected on the ground that it was a transparent humbug" was written on official paper containing the name as assistant editor of one W. H. DE PUY, A.M., D.D., LL.D., who persists in public and unqualified praise of the "transparent humbug," and of those controlling it as "persons of conscience and incapable of practising fraud upon the public;" and MR. DE PUY'S eulogy is signed from "the *Christian Advocate* office."

But the *Christian Nation*, editorially and in its advertising columns, cracks the nostrum up heaven-high as, *e. g.*, curing "disappointed invalids who have suffered many things of many physicans, spent their means, and are no better, but rather worse," etc. In this charming company of the ethical and the pious is to be classed the *New York Observer*. We would also point our praiseworthy contemporary to the proprietors and publishers of the *Literary Digest*, to whom we sent a letter of protest and received in reply a most discreet silence. For the benefit of these delightful humorists the editor of *Electricity* indites the following lesson in jingle, which these gentlemen should "paste in their hats" right over the phrenologic bump of veneration:

"INCONSISTENCY.

"Some moral teachers of the press
Seem much averse to others' teaching,
And writhe in evident distress
When one condemns their mode of preaching.
These now with monumental gall,
The right to criticise deny us,
Yet, spurning proof of fraud, they call
Electropoise electro-pious."

The Encouragement of Suicide by Insurance-Companies.—Among the agencies of civilization there are few that are more certainly beneficial than properly-conducted life-insurance. But it may not be doubted that the companies need public and scrutinizing oversight by the government to avoid the great evils that so easily slip in with the good. The imperfection of control, nay, the absolute non-control by the members leads almost inevitably to abuse of power, waste of the common capital, and the capital-engorged plethora of huge companies, whose corporate interests threaten the stability and purity of legislation and social life. Among the evils may be reckoned some aspects of the commercialization of risks. Men get insured as a business matter, "for the benefit of their creditors," etc. From family reasons or by the agents of the companies they are teased and tormented into taking a larger insurance than their income justifies, and rather than keep up the struggle, they "die to win." They also, it seems, insure with a possible view of committing suicide, especially if business is poor, or other misfortune should happen. A medical director of a large company writes: "Most of our suicides were heavily embarrassed financially, and in several instances there seemed to be a well-laid plan to secure all the insurance possible." Another says: "An insured person has the thought when financial trouble and despondency overtake him, especially if he finds it hard to continue his assessments, that suicide will end his earthly troubles and possibly benefit his family more than he might be able to do by continuing the struggle against his environments."

Emmenagogue-Dealers, Literature, and Druggists.—The following letter lies before us:

NEW YORK, November 2, 1894.

BROTHER DRUGGIST: Knowing as we do by our own experience that you have constant inquiries almost daily for a reliable emmenagogue, we beg to inform you we have just placed upon the market such an article under the name of ———, which we offer as an article you can recommend to your customers as such, also a perfect cure for all diseases peculiar to women.

The article is in liquid form, beautifully put up in pint bottles enclosed in cartoons, and sold as a dollar preparation, and should not be sold for less, as we confine our business to the drug trade exclusively. You can get it from your jobber at $8.00 per dozen or from us direct.

We will send our interesting reading matter on the subject direct to your female customers with or without your name printed on if you give us the names.

By giving this matter your attention it will no doubt prove to our mutual advantage.

Yours very truly,
———MEDICINE CO.,
Druggists & Chemists.

The physician who sends us this nasty bit of literature says that "half the *brother-druggists* in this country do it." In the circular accompanying this letter the advantage of this "Vegetable Female Regulator" is especially doubly emphasized "in irregular and obstructed menstruation which will surely be cured." We think the

U. S. Post-office authorities should get on the track of this enterprising firm.

"*Maternity Retreats*," so called, seem to be multiplying in a rather suspicious way and to be sheltering themselves under the protection of medicine or pseudo-medicine. We are not able to say in special cases whether the medical ethics and science are true or false, but the appearances are often much against them as being of the highest order. A circular before us suspiciously emphasizes the "absolute privacy" part a good deal, and offers the physician sending patients, ten per cent. of the fees paid. Upon consulting the scale of prices we find that the entrance fees are from $75.00 to $100.00, and if the infant is surrendered (which can be done "if so desired") the minimum terms are $100. "Homeopathic" and "regular" are both encouraged to come, and physicians of either category are supplied on demand.

REVIEWS.

HUMAN PHYSIOLOGY. By JOHN THORNTON, M.A., author of Elementary Physiography, Advanced Physiography, etc., with 268 illustrations, some colored. New York: Longmans, Green & Co., 1894.

THE demand for small-sized, compact text-books adapted to the use of medical students during college-life grows with the advance of medical education, and the near future will probably see the voluminous systems and manuals relegated to post-graduate work and reference-libraries. Dr. Thornton's handy little volume contains everything that a medical student can hope to learn before graduation; it is clearly written, fully up to date, and in addition to this it is cheap, a point which usually tells with students of medicine.

We are pleased to note that the author follows the lead of Prof. Foster and discards the *mechanical* theory of filtration and osmosis when speaking of absorption and assimilation, and makes the living cell something more than a mere combination of matter and force.

MEDICAL AND SURGICAL REPORTS OF THE BOSTON CITY HOSPITAL. Fifth series. Edited by DAVID W. CHEEVER, M.D., GEORGE B. SHATTUCK, M.D., and ABNER POST, M.D. Boston: 1894.

THIS report is a credit to the great institution it represents and to all the contributors. Dr. Cheever's report on 1238 operations, from 1864 to 1890, most prominently attracts attention. Dr. Councilman's studies of gonorrheal myocarditis and of syphilis of the heart are important, but we lack space to particularize further.

THE MEDICAL REGISTER OF NEW YORK, NEW JERSEY AND CONNECTICUT, FOR THE YEAR COMMENCING JUNE 1, 1894. Published under the Supervision of the New York Medico-Historical Society. John Shrady, M.D., Editor, Vol. XXXII. G. P. Putnam's Son's · New York.

WE are grateful to the editor and publisher for their conscientiousness and enterprise in preparing this excellent example of a medical register. Similar books should exist in every State.

BREAD FROM STONES. A NEW AND RATIONAL SYSTEM OF LAND FERTILIZATION. Translated from the German. Philadelphia: A. J. Tafel.

THIS is a small book devoted to showing the advantage of the use of the primitive rock, granite, etc., for fertilizing purposes. There is a probability that the statements have some value, but the subject is one on which a medical journal is not in a position to give an opinion.

NEWS ITEMS.

Meetings of Philadelphia Medical Societies:

	Meets.	Next meeting.
Academy of Surgery,	1st Monday of month, Oct.—June.	Jan. 7
College of Physicians,	1st Wednesday of month, Sept.—June.	Jan. 2
Section of Ophthalmology,	3d Tuesday of month, Sept.—May.	Jan. 15
Section of Orthopedic Surgery,	3d Friday of month, Oct.—April.	Jan. 18
Section of Otology,	1st Tuesday of month, Oct.—May,	Jan. 1
Section of Surgery,	2d Friday of month, Oct.—May.	Jan. 11
County Medical Society,	2d and 4th Wednesdays of month, Sept.—June.	Jan. 9
Neurological Society,	4th Monday of month, Oct.—April.	Jan. 28
Obstetrical Society,	1st Thursday of month, Sept.—June.	Jan. 3
Pathological Society,	2d and 4th Thursdays of month, Sept.—June.	Jan. 10

The Academy of Stomatology is a new association of dental practitioners in Philadelphia, organized for the purpose of investigating and studying all matters connected with the mouth, its functions in health and their aberrations in disease. A handsome suite of rooms has been secured at 1731 Chestnut Street for the holding of meetings, clinics, etc. In connection with these, a dental library and museum are being established, together with a reading-room, where it is proposed to keep on file all of the leading dental periodicals of the world. The ultimate purpose of the Academy is to establish a library and museum related to stomatology, which will be consulted by dental practitioners throughout the entire country.

Dr. Hare and the Philadelphia Hospital.—Dr. H. A. Hare, who was appointed visiting physician to the Philadelphia Hospital, in place of Dr. Judson Daland, has sent the following letter to the Board of Charities and Correction: "While appreciating the honor you have conferred upon me, I feel that under the circumstances I shall have to decline the appointment."

Prof. Isidore Schnabel, of the University of Prague, has been selected as the successor to the late Prof. Mauthner in the Chair of Ophthalmology in the University of Vienna.

A Pasteur Institute at Algiers was opened on October 1st, and on that very day a woman and a child that had been bitten by stray dogs were brought to the institute for treatment.

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